Notice for Users in the USA

FCC Statement

WARNING - FCC Regulations state that any unauthorized changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate this equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

A shielded I/F cable is required to insure compliance with FCC regulation for Class B computing equipment.

* As an Energy Star Partner, SHARP has determined that this product meets the Energy Star guidelines for energy efficiency.

About Modem

This equipment PC-9080 complies with Part 68 of FCC rules. On the bottom of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

The modem jack of this equipment complies with Sub-part F of Part 68 of FCC rules.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs contact the telephone company to determine the maximum REN for the calling areas.

If the terminal equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a compliant with the FCC if you believe it necessary.

The telephone company may mark changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service.

It trouble is experience with this equipment, please contact Sharp Electronics Corp. for repair and (or) warranty information (Refer to the end of this section). If the trouble is causing harm to the telephone network, the telephone company may request you remove the equipment from the network until the problem is resolved.

The equipment cannot be used on public coin service provided by the telephone company. Connection to Party Line Service is subject to state tariffs. (Contact the state public utility commission, public service commission or corporation commission for information.)

The Telephone Consumer Protection Act of 1991 marks it unlawful for any person to use a computer or other electronic device, including fax machines, to send any message unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. (The telephone number provided may not be a 900 number or any other number for which charges exceed local or long-distance transmission charges.) To program this information, refer to the manual of the communication software.

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Copyright

It is the intent of Sharp that this product be used in full compliance with the copyright laws of the United States and that prior permission be obtained from copyright owners whenever necessary.

Product Information and Customer Assistance

For Product Information and Customer Assistance:

Call: 1-800-BE-SHARP (237-4277)

Sharp Electonics Corp.
Sharp Plaza
Mahwah, NJ 07430

Notice for Users in Canada

About Modem

The Load Number of your modem is 6.

The Industry Canada label identifies certified equipment.
This certification means that the equipment meet certain telecommunications network protective, operational and safety requirements. The department does not guarantee the equipment will operate to the user's satisfaction.
Before installing this equipment, users should ensure that it is permissible to be connected to the facilites of the local telecommunications company.
The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside writing associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION Users should not attempt to make such connections themselves, but should contact the approprlate electric inspection authrity, or electrician, as appropriate.

"The **Load Number** (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device. To prevent overloading, the termination on a loop may consist of any combination of devise subject only to the requirement that the total of the Load Numbers of all the devices does not exceed 100."

This digital apparatus does not exceed the Class A Limits for radio noise emissions from digital apparatus as set out in the Radio Interference Regulation of the Canadian Department to Communications.

Notice for Users in Australia

Service Inquiries

Please contact your dealer for service if required or contact Sharp Corporation of Australia on 1-800-807820 (free call) for referral to your nearest Sharp authorised Service Centre. Details can be found on the warranty card inserted with the documentation.

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Do not dispose of large quantities of used Lithium batteries at the same time.

Copyright

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SHARP is not in a position to authorise the copying or broadcasting of copyright materials and nothing in this OPERATION MANUAL should be implied as giving that authority.

Notice for Users in the UK

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

BLUE: **Neutral**
BROWN: **Live**

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows.

The wire which is coloured **BLUE** must be connected to the terminal which is marked with the letter **N** or coloured black.

The wire which is coloured **BROWN** must be connected to the terminal which is marked with the letter **L** or coloured red.

This apparatus must be protected by a 3A fuse in the mains plug or distribution board.

"WARNING: THIS APPARATUS MUST BE EARTHED"

This apparatus is approved under approval number NS/G 1234/J/100003 for indirect connection to the public telecommunication system in the United Kingdom.

Copyright

Recording and playback of any material may require consent, which SHARP is unable to give. Please refer particularly to the provisions of the Copyright Act 1956, the Dramatic and Musical Performers Protection Act 1958, the Performers Protection Acts 1963 and 1972 and to any subsequent statutory enactments and orders.

Notice for Users in Europe

This equipment complies with the requirements of Directives 89/336/EEC and 73/23/EEC as amended by 93/68/EEC.

Dieses Gerät entspricht den Anforderungen der EG-Richtlinien 89/336/EWG und 73/23/EWG mit Änderung 93/68/EWG.

Ce matériel répond aux exigences contenues dans les directives 89/336/CEE et 73/23/CEE modifiées par la directive 93/68/CEE.

Dit apparaat voldoet aan de eisen van de richtlijnen 89/336/EEG en 73/23/EEG, gewijzigd door 93/68/EEG.

Dette udstyr overholder kravene i direktiv nr. 89/336/EEC og 73/23/EEC med tillæg nr. 93/68/EEC.

Quest' apparecchio è conforme ai requisiti delle direttive 89/336/EEC e 73/23/EEC, come emendata dalla direttiva 93/68/EEC.

Η εγκατάσταση αυτή ανταποκρίνεται στις απαιτήσεις των οδηγιών της Ευρωπαϊκής Ενώσης 89/336/ΕΟΚ κατ 73/23/ΕΟΚ, όπως οι κανονισμοι αυτοι συμπληρώθηκαν από την οδηγια 93/68/ΕΟΚ.

Este equipamento obedece às exigências das directivas 89/336/CEE e 73/23/CEE, na sua versão corrigida pela directiva 93/68/CEE.

Este aparato satisface las exigencias de las Directivas 89/336/CEE y 73/23/CEE, modificadas por medio de la 93/68/CEE.

Denna utrustning uppfyller kraven enligt riktlinjerna 89/336/EEC och 73/23/EEC så som komplette ras av 93/68/EEC.

Dette produktet oppfyller betingelsene i direktivene 89/336/EEC og 73/23/EEC i endringen 93/68/EEC.

Tämä laite täyttää direktiivien 89/336/EEC ja 73/23/EEC vaatimukset, joita on muutettu direktiivillä 93/68/EEC.

CAUTION:

TO PREVENT ELECTRICAL SHOCK, DISCONNECT THE AC CORD AND THE BATTERY BEFORE SERVICING.

CAUTION:

FOR A COMPLETE ELECTRICAL DISCONNECTION, PULL OUT THE MAIN PLUG AND THE BATTERY.

VORSICHT:

UM DIE STROMZUFUHR VOLLSTÄNDIG ZU UNTERBRECHEN, DEN NETZSTECKER HERAUSZIEHEN UND DIE BATTERIE ÈNTFERNEN.

ATTENTION:

POUR UN ARRET TOTAL DU SYSTEME, DECONNECTEZ LE FIL DE LA BATTERIE.

VARNING:

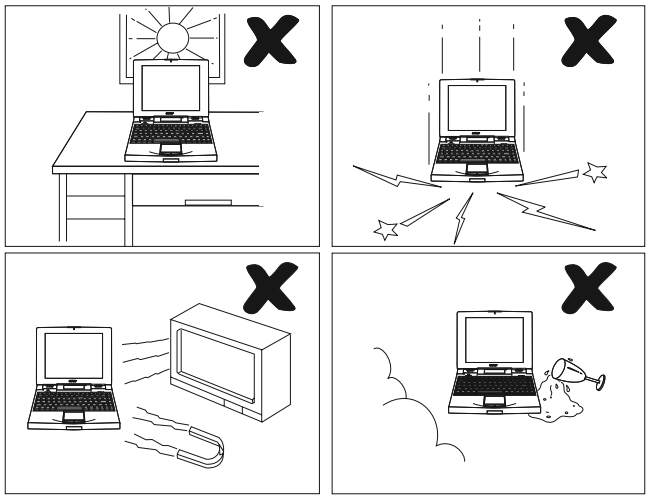
FÖR TOTAL ELEKTRISK URKOPPLING, KOPPLA UR KONTAKTEN OCH TA UR BATTERIET.

PRECAUCION:

PARA UNA COMPLETA DESCONEXION ELECTRICA DESENCHUFE LA CLAVIJA DE LA RED Y LA BATERIA.

Safety Precautions

- Follow all cautions and instructions which may be marked on the notebook.
- Except as described elsewhere in this manual, refer all servicing to qualified personnel. Immediately shut off the notebook and refer for servicing under the following conditions:
  - when the power cord or plug is damaged or frayed
  - if liquid has been spilled on the notebook
  - if the notebook has been dropped or the cabinet has been damaged
- Never push any objects of any kind into cabinet openings. They may touch dangerous voltage points or short parts that could result in fire or electrical shock.
- Turn off the notebook before installing or removing a peripheral device.
- Turn off the notebook and disconnect the AC cord before cleaning.
- Do not expose the notebook to direct sunlight.
- Keep the notebook away from any magnetic devices and TVs.
- Do not drop the notebook.
- Since this product is not waterproof, do not use it or store it where fluids, for example water, can splash onto it. Raindrops, water spray, juice, coffee, steam, perspiration, etc. will also cause malfunction.



About This Manual

Notice

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Sharp assumes no responsibility directly or indirectly, for financial losses or claims from third persons resulting from the use of this product and any of its functions, such as stolen credit card numbers, the loss of or alteration of stored data, etc.

Edition

1st Edition, July 1996.

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Video Work is a registered trademark, and ProImage Plus is a trademark, of Prolab Technology Co., Ltd.
All other brand and product names are trademarks or registered trademarks of their respective holders.

Recording the Information

For future reference, please record the following information in the spaces provided below.

Model Number:	
Serial Number:	
BIOS Version Number:	
Date of purchase:	
Dealer's Name:	
Place of purchase:	
Password:	

The serial number is printed on a sticker located on the bottom of the notebook. You will see the BIOS Version number on the middle line of the LCD screen when you turn on the notebook.

How to Use this Manual

This manual describes your new notebook and contains all the information you need to set up and use the notebook. Whether you are a new or an experienced user, you will benefit more from this manual if you are familiar with its organization.

The manual is divided into four chapters, plus appendixes.

Chapter 1 Quick Setup provides step-by-step instructions to help you setup and begin using the notebook as quickly as possible. You should read this chapter first before you do any operations.

Chapter 2 Customizing Your Notebook provides an introduction to the notebook's Setup Utility, detailed descriptions of many configuration and power management options it affords.

Chapter 3 Using Your Notebook provides important information on the daily use of the notebook, covering topics such as power sources, keyboard, floppy disks,CD-ROM and hard disk drives, and use of the GlidePoint, video, PC Cards and other features of the notebook.

Chapter 4 Connecting Peripherals provides detailed instructions on expanding the capabilities of the notebook. Topics covered include connecting a printer, attaching a serial device, and replacing the hard disk drive.

Appendixes provide advice on the routine care and maintenance of the notebook, a guide to troubleshooting problems that may arise in the use of the notebook, detailed specifications on your notebook and the built-in ports. For your convenience, an index is provided at the end of this manual.

In addition to this manual, you may want to consult the Windows 95 manual, and the manuals for your software applications. The Sharp Online Manual accessible from the Windows 95 Help button will also help your computing.

Manual Conventions

Throughout this manual we have used a set of style conventions. These conventions are described below.

Keyboard Keys

Key labels, when referred to in the instructions, are shown in boldface as below:

Press **Enter** to continue.

When more than one key are pressed simultaneously, the key labels are separated by a plus (+) sign, as shown below:

Restart your notebook by pressing **Ctrl**+**Alt**+**Delete.**

This means hold down the **Ctrl** and **Alt** keys, and press **Delete** simultaneously. Important key combinations are highlighted throughout this manual by enlarged and iconic representations of the keys you must press to perform an operation, e.g.,

Notes and Cautions

Icons and italicized text are used for notes and cautions, to make important information stand out.

An information icon alerts you to a special technique or information that may help you perform a task or better understand a process.

A caution icon alerts you to something that may cause problems or damage to hardware, software or data.

Words/Texts on Screen

Words and texts displayed on the screen, such as window titles or possible paramenters, are italicized in this manual. For example,

> Double-check this icon to display the *Power Properties* window.
> Set the item to *Enabled*.

Sample Entries/Screens

In the following case, press the **Enter** key after you type the command.

```
C:\>FORMAT A: Enter
```

Note that the screens reproduced in this manual may differ slightly from the screens you see on your notebook.

File Names

References to commands, utilities, device drivers, directory and file names in this manual are printed in upper case, as shown below:

> Type in the PHDISK command.

Section Titles

Section titles in other parts of the manual are italicized, as shown below:

> Refer to *Video Subsystem* section in Chapter 3.

Table of Contents

Notice for Users in the USA i
Notice for Users in CANADA iv
Notice for Users in Australia vi
Notice for Users in the UK vii
Notice for Users in Europe viii
Safety Precautions x
About This Manual xi
Recording the Information xii
How to Use this Manual xiii
Manual Conventions xiv
Table of Contents xvi
Appearance of the Notebook xviii

Chapter 1 Quick Setup

Getting Started 1-1
Unpacking the Notebook 1-2
Installing the Battery Pack 1-3
Connecting to AC Power 1-5
Opening the Notebook 1-7
Turning on the Power 1-8
Adjusting Screen Brightness 1-9
Setting up Windows 95 1-10
Setting Initial Condition 1-11
Shutting Down the System 1-12

Chapter 2 Customizing Your Notebook

Running the Setup Utility 2-1
Power Management 2-9
Changing Power Configuration Settings 2-13

Chapter 3 Using Your Notebook

Status Indicator LEDs 3-1
Power Sources 3-3
CD-ROM Drive 3-7
Floppy Disk 3-11
Hard Disk Drive 3-13
Keyboard 3-14
GlidePoint 3-16
Video Subsystem 3-19
PC Cards and Devices 3-21
Infrared Communications 3-23
Modem 3-24
Audio System 3-25

Chapter 4 Connecting Peripherals

Handling Precautions 4-1
Installing a Memory Module 4-2
Changing the Hard Disk Drive 4-5
Changing the Battery 4-7
Connecting a Printer 4-8
Connecting an External Monitor 4-10
Connecting a Serial Device 4-11
Connecting a Keyboard or Mouse 4-12
Connecting Audio/TV/Video Equipment 4-13
Port Replicator 4-16

Appendixes

Care and Maintenance A-1
Recreating the Suspend-to-Disk Partition B-1
Troubleshooting C-1
System Mapping D-1
Port Pin Assignments E-1
Technical Specifications F-1

Index

Appearance of the Notebook

Front

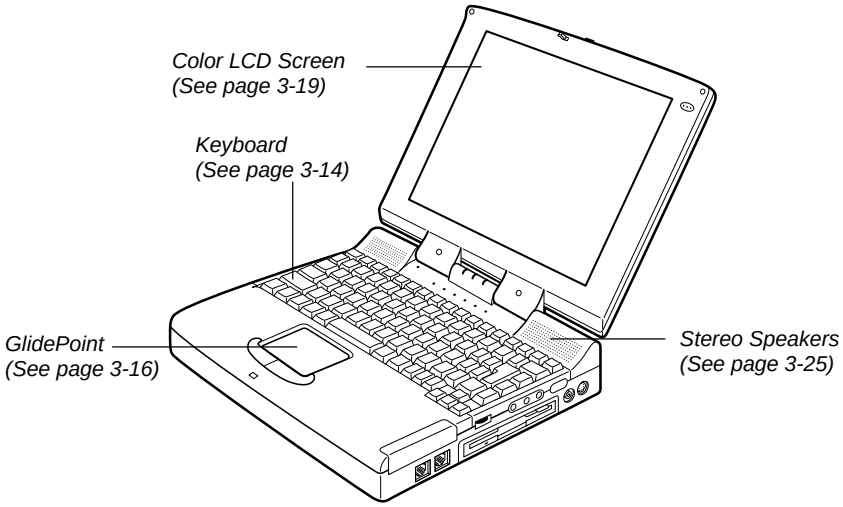


Figure 1. The Front of the Notebook

Right Side

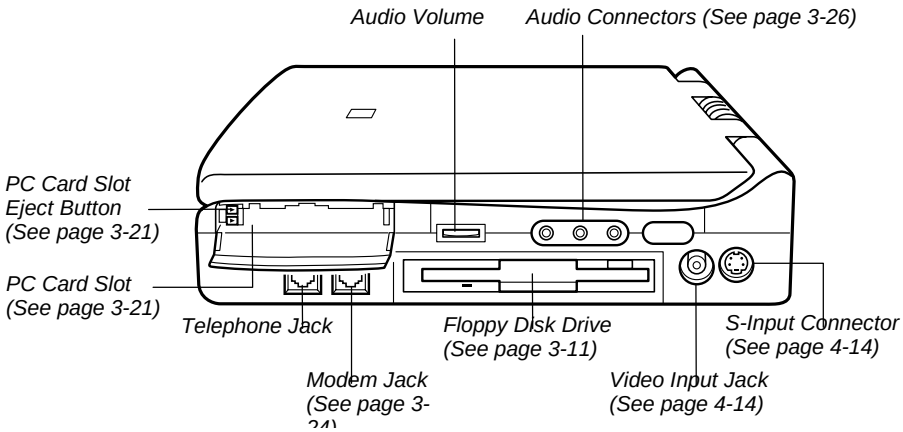


Figure 2. The Right Side of the Notebook

Left Side

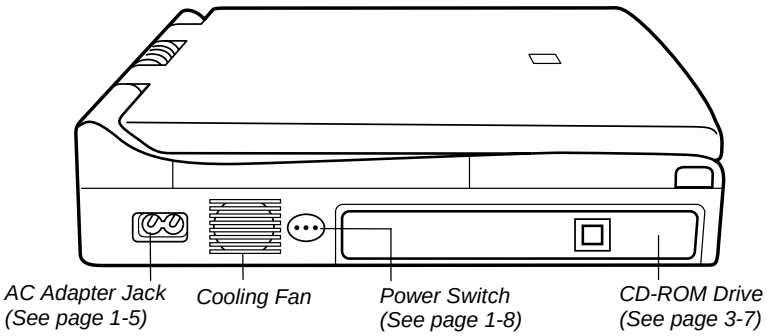


Figure 3. The Left Side of the Notebook

Rear

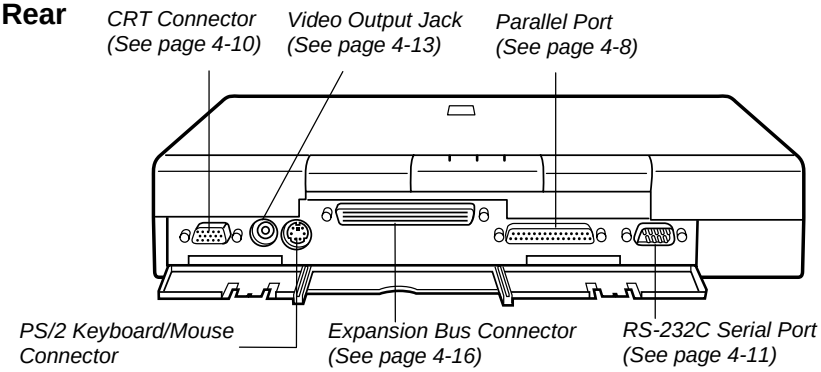


Figure 4. The Rear of the Notebook

Bottom

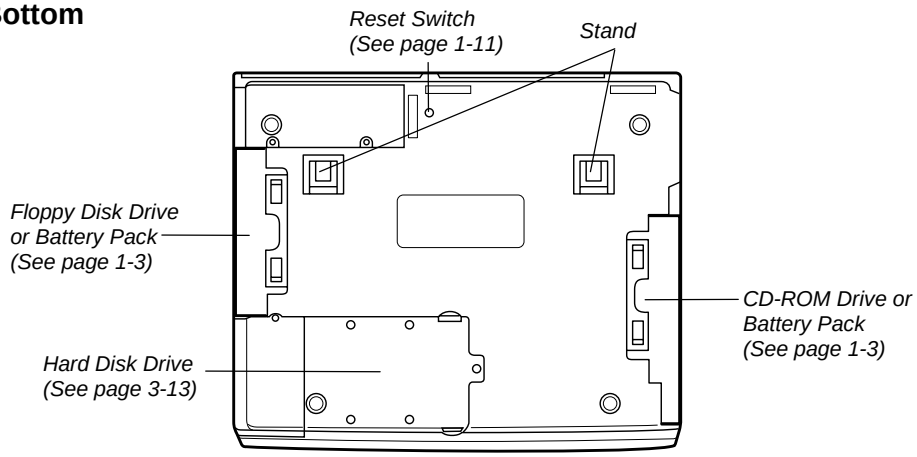


Figure 5. The bottom of the Notebook

CHAPTER 1

Quick Setup

Your notebook is designed and pre-configured for easy setup and use. This chapter describes the steps you should follow to get the notebook up and running as quickly as possible. You should read this chapter first.

Getting Started

This chapter explains the whole procedure to get your notebook up and running in the following sequence.

1. Unpacking the Notebook
2. Installing the Battery Pack
3. Connecting to AC Power
4. Opening the Notebook
5. Turning on the Power
6. Adjusting Screen Brightness
7. Setting up Windows 95
8. Setting Initial Condition
9. Shutting Down the System

Unpacking the Notebook

Your notebook comes securely packaged in a sturdy cardboard shipping carton. Upon receiving your notebook, open the carton and carefully remove the contents. In addition to this Operation Manual, the shipping carton should contain the following items:

- Notebook computer
- AC power cord
- Lithium-ion battery pack
- Audio connection cable
- TV connection cable
- S terminal video cable
- Blank battery filler cover
- Windows 95 CD-ROM
- Backup CD-ROM
- CD-ROM Setup Boot Disk
- Windows 95 manual and license
- Reinstallation Instructions
- TranXit Quick Reference Guide
- IntelliLink Import/Export User's Guide
- PC-cillin '95 Virus Scanner User's Guide
- Phoenix PowerPanel User's Guide
- Modem cable (US only)
- Super Voice User's Guide (US only)
- AT Command Reference Manual (US only)

Carefully inspect each component to make sure nothing is missing or damaged. If any of these items is missing or damaged, notify your dealer immediately. Be sure to save the shipping materials and carton in case you need to ship or store the notebook in the future.

Installing the Battery Pack

The notebook has been shipped with the battery separate to preserve battery life. You can install up to two battery packs, one into the CD-ROM drive slot and the other into the 3.5-inch floppy disk drive slot.

The following steps describe how to install the battery pack into either the CD-ROM drive slot or the floppy disk drive slot:

1. Make sure the notebook is not connected to AC power.
2. Place the notebook on a flat surface, then lift the notebook by the left side and turn it upside down.
3. Slide the retaining levers inward on the desired slot, then gently slide out the drive.

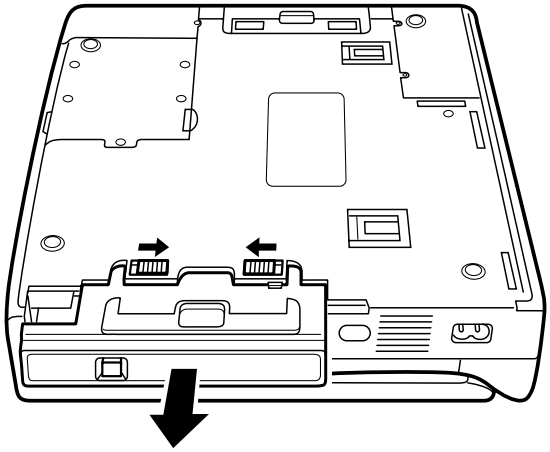


Figure 1-1. Removing the CD-ROM Drive

You can remove the floppy disk drive similarly.

4. If you have selected the CD-ROM slot, slide the supplied blank battery filler cover into place as shown. This cover is not needed for the floppy disk drive.

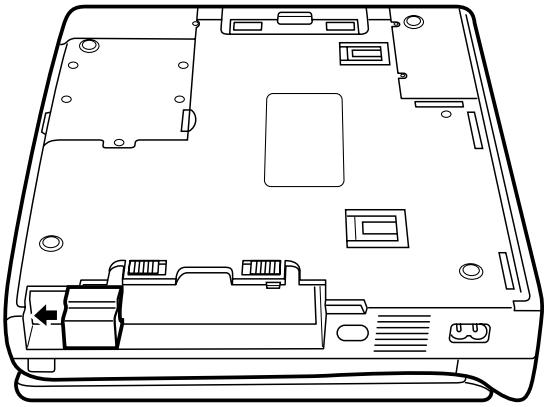


Figure 1-2. Installing Blank Battery Filler Cover

5. With the bottom of the battery pack facing up, insert the connector into the notebook.
   When the battery pack clicks into place, slide the retaining levers outward.

When using the battery pack for the first time, connect the notebook to an AC power source and charge the battery pack fully.

Connecting to AC Power

The notebook can be powered by either the rechargeable battery pack or the built-in AC adapter. You will find detailed instructions on using both power sources in Chapter 3, but to get the notebook up and running for the first time, follow the steps below to prepare the battery pack and attach the AC cord.

Before using the notebook for the first time, charge the battery pack by attaching the AC cord, as follows.

1. Connect the female end of the AC cord to the AC jack on the left side of the notebook.
2. Connect the male end of the AC cord to a wall outlet.

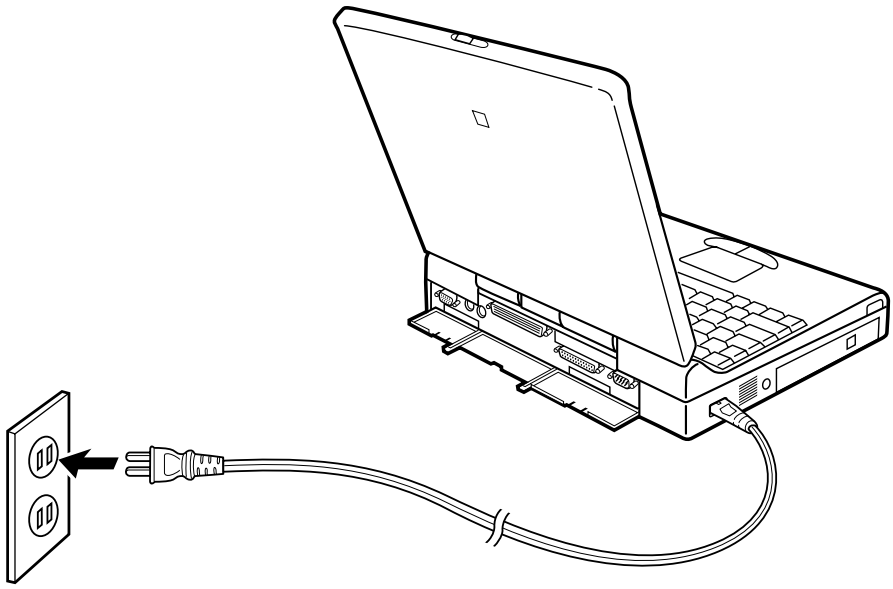


Figure 1-3. AC Cord Connections

When you connect the AC cord to the notebook and to a wall outlet, the outlet supplies power to the notebook and recharges the battery.
Whenever possible, keep the AC cord plugged into the notebook and a wall outlet to recharge the battery. Although not necessary, it is also a good idea to protect the display panel by always lowering it when the notebook is powered off.

It is important for the notebook to be located near the electrical outlet while connected, and for the AC plug to be easily removable.

Always hold the plug (not the cord) when pulling out the AC cord from the outlet.

Opening the Notebook

At the front of the notebook you will find a retaining button on the display panel which locks the display in the closed position when the notebook is not in use. To raise the display follow these steps:

1. Press the display lock latch until the display panel releases, and then raise the LCD screen.
2. Tilt the display to a comfortable viewing position.

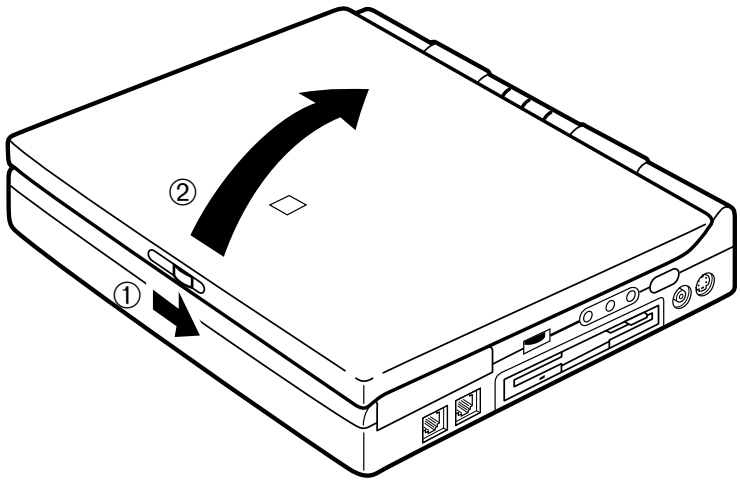


Figure 1-4. Raising the Display Panel

Turning on the Power

You can find the power switch near the center of the left side of the notebook. Press the switch firmly to turn it on.

The power switch does not operate with only a light touch.

After a few seconds, the notebook begins to execute the Power-On-Self-Test (or POST) which is automatically run whenever the notebook is turned on. It checks the memory, keyboard, system board and other components of your notebook before the notebook begins normal operation.

*The notebook may alert you with a message that the configuration is invalid. Press the **F2** key to enter the Setup Utility. To load the default configuration, press the **F9** key. Then press the **Esc** key, select "Save Change & Exit," and press the **Enter** key twice.*

Adjusting Screen Brightness

If you have trouble reading the screen, you can adjust the display through the use of special key combinations. The display control key combinations are as follows:

This key combination decreases LCD screen brightness incrementally.

This key combination increases LCD screen brightness incrementally.

Setting up Windows 95

The first screen lets you know what is happening by the following steps:

- Gathering information
- Configuring your computer
- Restarting your computer

To set up Windows 95, follow the instructions on the screen. It takes approx. 20 minutes to complete all of the Setup procedures.

Setting Initial Condition

After setting up Windows 95, you need to set the initial condition of this notebook in the following procedure.

1. Double-click the Sharp Startup icon at the upper right corner of the screen.
2. When the message appears, click OK. The system restarts, and the initial condition is set.

In this condition, several programs are set in the StartUp folder, and the SHARP original wallpaper is displayed on the screen as default.

The instructions in the documents attached to the notebook premises that you have set the initial condition.

Shutting Down the System

To power off the notebook, from the *Start* menu, select *Shut Down* and then click *Yes*. The notebook turns off automatically.

If the notebook becomes hot during the operation, the cooling fan will continue to turn around until the temperature is low enough after you shut down the system.

1

If You Cannot Shut Down

Software Reset

You can reset the software when you encounter software problems which lock up the notebook. To reset the system or "reboot," press the **Ctrl+Alt+Delete** keys simultaneously. Then, follow the instructions on the screen: press the **Ctrl+Alt+Delete** keys again. The notebook restarts. This is known as a "warm boot."

Resetting may cause the data loss. Use the software reset only if the normal Windows 95 Shut Down does not work because of software malfunction. Although resetting will not damage the system, you may lose the data you are processing.

Power Switch

You can turn off the notebook with the power switch when you encounter hardware or software problems which lock up the system. Press the power switch on the left side of the notebook for five seconds. The notebook shuts down.

Hardware Reset

You can use the hardware reset switch only if the power switch does not turn off the notebook. The switch is in the small hole at the bottom of the notebook. Press this switch with the tip of a pencil or ballpoint pen. The notebook shuts down.

Before turning it back on, wait at least 10 seconds after turning off the notebook. Turning the power off and on in rapid succession can damage the notebook's electrical circuitry.

CHAPTER 2

Customizing Your Notebook

As with most other computers, your notebook employs a Setup Utility that stores the basic bootup configuration and power management settings. This chapter describes how to customize your notebook using the Setup Utility.

Running the Setup Utility

Your notebook has been properly set up and configured prior to delivery. However, you may find it is necessary to use the notebook's Setup Utility to change system configuration information, such as time and date, port assignments, passwords or power management settings. The Setup Utility can be accessed when "Press <F2> to enter setup" appears at boot time.

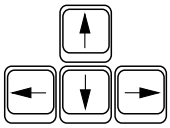
The settings you specify with the Setup Utility are recorded in a special area of memory called CMOS RAM. This memory is backed up by an independent backup battery so that it will not be erased when you turn off or reset the system. Whenever you turn on the power, the system reads the settings stored in CMOS RAM and compares them to the equipment check conducted during the power-on-self-test (POST). If an error occurs, an error message is displayed on screen, and you are prompted to run the Setup Utility.

The Setup Utility consists of four menu pages and the Exit page, as follows:

1. Main: basic system configuration (time/date, disk drive and memory settings)
2. Advanced: device interface configuration (I/O ports, sound settings)
3. Security: password settings
4. Power: Power management (battery saving settings)
5. Exit: exit the Setup Utility

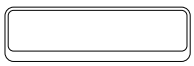
Using the Setup Utility

The following keys are used to maneuver among Setup options and to change values:



Use the cursor keys to move from one option to another.

Press these keys to move to the first or last item.



Press this key to increase the numeric value or change to the next value of an option.

Press this key to decrease the numeric value or change to the previous value of an option.

Press this key to enter the Exit menu. From the Exit menu, you can make default settings or load previous values and so on.

Press this key to replace only the settings on the current setup page with their default values (date and time are not changed).

Press this key to restore the values you previously saved (date and time are not changed).

Press this key to display online help for the Setup Utility.

Changing Main Configuration Settings

The Main setup page of the Setup Utility which is illustrated below allows you to change the following information.

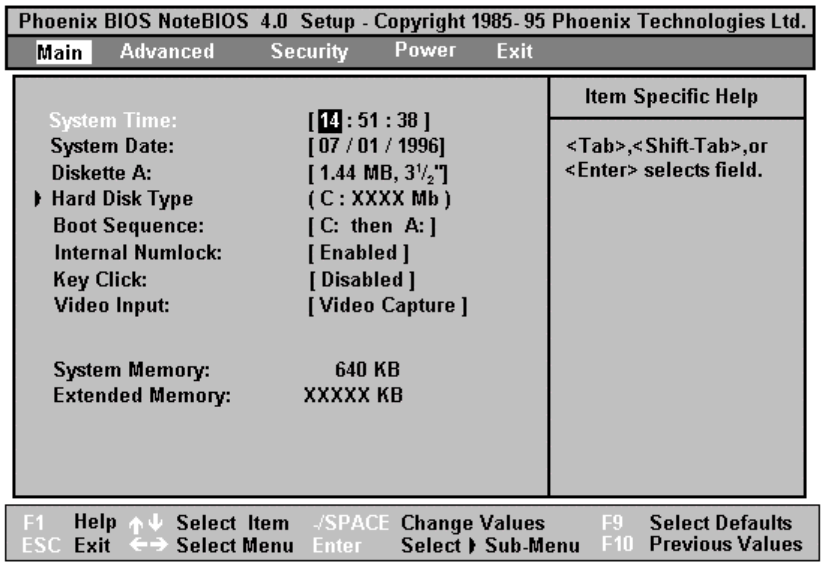

Phoenix BIOS NoteBIOS 4.0 Setup - Copyright 1985-95 Phoenix Technologies Ltd.
Main Advanced Security Power Exit
System Time: [14 : 51 : 38]
System Date: [07 / 01 / 1996]
Diskette A: [1.44 MB, 3½"]
Hard Disk Type (C : XXXX Mb)
Boot Sequence: [C: then A:]
Internal Numlock: [Enabled]
Key Click: [Disabled]
Video Input: [Video Capture]
System Memory: 640 KB
Extended Memory: XXXXX KB
Item Specific Help
<Tab>,<Shift-Tab>,or <Enter> selects field.
F1 Help ↑↓ Select Item -/SPACE Change Values F9 Select Defaults
ESC Exit ←→ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

Figure 2-1. Setup Utility Main Configuration Screen

System Time Allows you to change the system time, using the format *hour:minute:second* (24-hour format). Press the **Enter** key to move the cursor. You can also change the system time from the Windows Control Panel.

System Date Allows you to change the system date, using the format *month/day/year*. Press **Enter** to move the cursor. You can also change the system date from the Windows Control Panel.

Diskette A This setting should generally be set to *1.44MB,3½*".

Hard Disk Type Determines the type of the internal hard disk. If it is set to *Auto*, the type of the new hard disk will automatically be identified when the hard disk is replaced.

Boot Sequence Determines where the boot program will look for operating system files. The default is *C: then A*:, which checks the hard disk first, and only checks the floppy disk drive if no system files are found on the hard disk.
Other options for this setting are *A: then C*:, which check the floppy disk drive (A:) first, and if no system disk is found in the drive, the system boots from the hard drive; *C: only*, which never checks for system files on the floppy disk drive.

Internal Numlock If you are using an external keyboard, you may want to use the external keyboard's NumLock key. The NumLock key of the external keyboard also effects the built-in keyboard, and the built-in keyboard turns on the NumLock status. To avoid this, set this option to *Disabled* before using the NumLock key on an external keyboard.

Key Click Enables or disables audio feedback of key click.

Video Input Determines whether you use the built-in capture board or the ZV port.

System Memory Indicates the size of 'conventional' memory to be made available directly to MS-DOS. It always shows *640 KB*.

Extended Memory Indicates the size of extended memory found by the BIOS during its POST. The value displayed is the amount of memory located above 1MB in the microprocessor's memory address map. Because the notebook ships with a minimum of 16MB of memory as standard, this value will not be less than 15360KB. The notebook automatically updates the value here when you enter the Setup Utility after you add an optional memory module.

Changing Advanced Configuration Settings

The Advanced setup page of the Setup Utility lets you configure I/O settings.

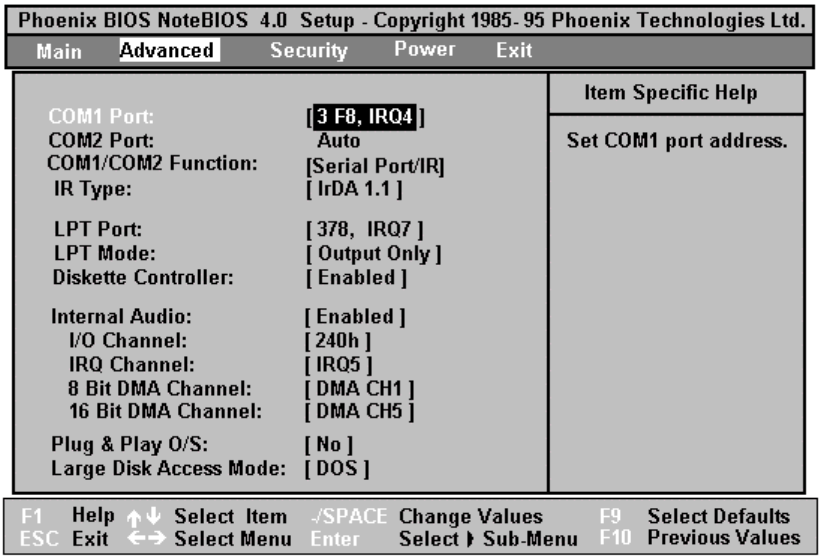

Phoenix BIOS NoteBIOS 4.0 Setup - Copyright 1985-95 Phoenix Technologies Ltd.
Main
Advanced
Security
Power
Exit
Item Specific Help
COM1 Port: [3 F8, IRQ4]
COM2 Port: Auto
COM1/COM2 Function: [Serial Port/IR]
IR Type: [IrDA 1.1]
LPT Port: [378, IRQ7]
LPT Mode: [Output Only]
Diskette Controller: [Enabled]
Internal Audio: [Enabled]
I/O Channel: [240h]
IRQ Channel: [IRQ5]
8 Bit DMA Channel: [DMA CH1]
16 Bit DMA Channel: [DMA CH5]
Plug & Play O/S: [No]
Large Disk Access Mode: [DOS]
Set COM1 port address.
F1 Help ↑↓ Select Item -/SPACE Change Values F9 Select Defaults
ESC Exit ←→ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

Figure 2-2. Setup Utility Advanced Configuration Screen

COM1 Port Indicates the I/O address and interrupt (IRQ) to be used when COM1 is selected by software.

COM2 Port Indicates the I/O address and interrupt to be used when COM2 is selected by software.

COM1/COM2 Function Determines which combination of *Serial Port*, *FAX modem* or *IR* is assigned to the COM1 and COM2.

IR Type Determines the communications compatibility mode for the infrared port. However, this setting should be fixed at *IrDA 1.1*. To change the IR type, refer to the section of *Infrared Communications* in Chapter 3.

LPT Port Indicates the I/O address and interrupt to be used when printer port LPT1 is selected by software.

LPT Mode Allows you to configure the notebook's parallel port as an *Output Only* printer port, a *Bi-Directional* port, or as an Extended Capabilities port *(ECP)*.

Diskette Controller This setting should be *Enabled* whenever the internal floppy disk drive is installed. If you remove the drive, for example, to install a battery, this setting should be *Disabled*.

Internal Audio Enables or disables the internal audio. It sets the I/O Channel, IRQ Channel, 8bit DMA Channel, and 16bit DMA Channel.

Plug & Play O/S The default value is *No*. You can set it to *Yes* if necessary.

If your notebook, connected with peripheral devices such as a PC card, is not working well, set Plug & Play O/S to Yes. The change of the setting may solve the problem. In this case, however, you cannot use a PC card after starting up the notebook in MS-DOS.

Large Disk Access Mode Available settings are *DOS* (the default), or *Other*. Use the DOS setting unless you install another operating system, such as UNIX.

Changing Security Configuration Settings

The Security setup page of the Setup Utility lets you set passwords.

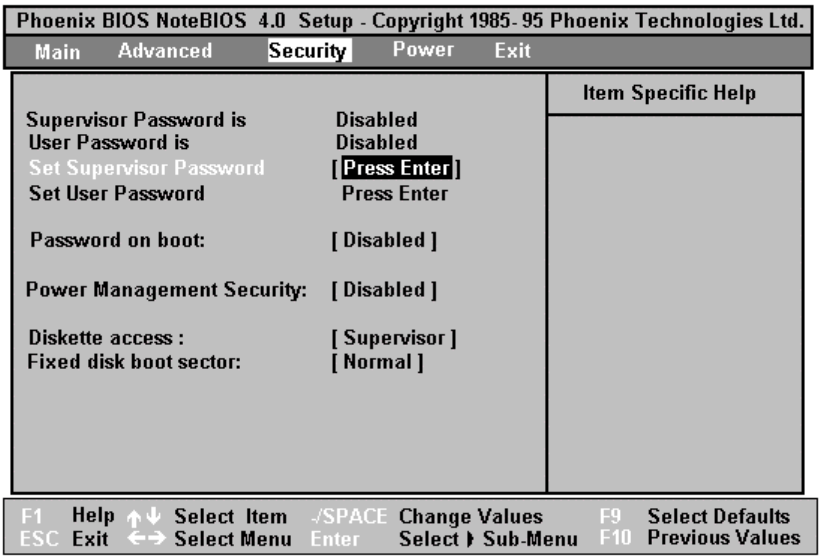

Phoenix BIOS NoteBIOS 4.0 Setup - Copyright 1985-95 Phoenix Technologies Ltd.
Main Advanced Security Power Exit
Item Specific Help
Supervisor Password is Disabled
User Password is Disabled
Set Supervisor Password [Press Enter]
Set User Password Press Enter
Password on boot: [Disabled]
Power Management Security: [Disabled]
Diskette access : [Supervisor]
Fixed disk boot sector: [Normal]
F1 Help ↑↓ Select Item -/SPACE Change Values F9 Select Defaults
ESC Exit ←→ Select Menu Enter Select ▸ Sub-Menu F10 Previous Values

Figure 2-3. Setup Utility Security Configuration Screen

Supervisor Password is Indicates whether a Supervisor Password is required (*Enabled*) or not. If enabled, the password will be required to change certain configuration settings.

User Password is Indicates whether a User Password is required (*Enabled*) or not. If enabled, the password will be required to use the notebook.

Set Supervisor Password Select this field and press **Enter** to set a password. Passwords can be up to seven characters in length, and can be cleared by pressing **Enter** without typing any characters.

Set User Password Select this field and press **Enter** to set a password. Passwords can be up to seven characters in length, and can be cleared by pressing **Enter** without typing any characters.
In order to set the User password, the Supervisor password must be set in advance.

If you lose your password, you will be unable to access the notebook or change the configuration. Make sure to select a password you will never forget, or write it down and protect it in a secure place. Otherwise, you will have to contact your dealer for assistance.

Password on boot Defines whether the system prompts you for the password during the bootup. If having set this option to Enables, you need to input the supervisor password or user password when booting.

Power Management Security If you set this setting to *Enabled*, when the notebook resumes from the Suspend to Disk mode, you will be prompted to enter the password.

Diskette access Limits read/write access to floppy disks according to password entry at the last bootup. If set to *Supervisor*, floppy disk access will be enabled only if the Supervisor password was entered when the notebook was last booted. If set to *User*, access is enabled if either the Supervisor or User password was entered.

Fixed disk boot sector Prevents possible virus infections from making disks inaccessible. When this selection is *Write protect*, write access to the boot sector of hard and floppy disks is inhibited. However, note that some types of viruses can still cause damage to program and data files. To change the partitioning of the hard disk or to install a new file system, this setting must be *Normal*.

If you set the conditions below, you cannot access the floppy disk drive
- Supervisor password is *set,*
- Password on boot *is disabled, and*
- Diskette access *is set to Supervisor.*

CHAPTER 3

Using Your Notebook

This chapter describes basic features and procedures for using the notebook. Topics covered include power sources, using CDs, diskettes and the hard disk drive, the GlidePoint, PC Cards and devices, the video subsystem, and enjoying the audio capabilities of the notebook.

Status Indicator LEDs

The nine status indicator LEDs are located just above the keyboard, as illustrated below.

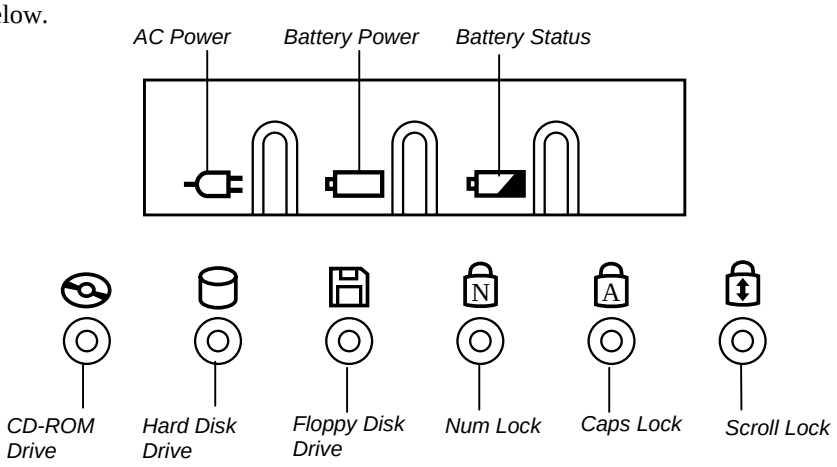


Figure 3-1. Status Indicator LEDs

3

Power Status Indicators

AC Power

This LED lights green when the notebook is being powered by AC, and blinks when Suspend to RAM is active using AC power. The LED is off when the notebook is off or powered by batteries, or when Suspend to Disk is active.

Battery Power

This LED lights green when the notebook is being powered by batteries, and blinks when Suspend to RAM is active using battery power. The LED is off when the notebook is off or powered by AC, or when Suspend to Disk is active.

Battery Status

During normal operation, this LED stays off as long as the battery is charged. When the battery charge drops to 20% of capacity, the LED lights red and a 10-second alarm sounds. When this occurs, save your work to disk, and connect AC to recharge the battery. Please note that no alarm sounds if you are using the computer in the Suspend to RAM mode.

If the battery is allowed to discharge further during operation, this LED starts blinking red and a continuous alarm sounds, indicating a critical battery condition. During Suspend to RAM, however, the alarm does not sound.
The Suspend to Disk mode activates automatically, and you will have to connect AC or replace the battery with a charged pack to resume working.
When AC is connected, this indicator glows green if the battery pack is fully charged, or orange if the battery is being charged. If a fault occurs with the battery or charger, this indicator blinks orange. Try removing the battery pack, then re-installing it. If the indicator still blinks orange, there may be a problem with the notebook or the battery pack.

Other Indicator LEDs

CD-ROM Drive

This indicator glows green while the CD-ROM is being accessed. Wait for this indicator to turn off before removing the CD-ROM.

Hard Disk Drive

This indicator glows green while the hard disk drive is being accessed. To avoid data loss, never remove the drive, or turn off or reset the notebook when this indicator is lit.

Floppy Disk Drive

This indicator glows green while the floppy disk drive is being accessed. To avoid data loss, never remove the diskette from the drive, or turn off or reset the notebook when this indicator is lit.

Num Lock

This indicator glows green when the keyboard Num Lock function is engaged, to activate the keyboard's embedded numeric keypad.

Caps Lock

This indicator glows green when the keyboard Caps Lock function is engaged, causing characters to be entered in upper case.

Scroll Lock

This indicator glows green when the keyboard Scroll Lock function is engaged, causing text to scroll without altering the cursor position on screen.

Power Sources

The notebook is designed to operate with one of the following power sources:

- AC power from a wall outlet
- one or two Lithium-ion battery packs

Use AC power whenever possible, relying on the battery pack only when AC power is unavailable.

Using AC Power

An AC adapter is built into the notebook, to provide power for operation and to charge the batteries when the AC cord is connected to a wall outlet. The AC input voltage can range anywhere from 100 to 240 volts, making it suitable for use virtually anywhere in the world with the appropriate plug adapter. The battery pack automatically recharges while your notebook is connected to AC. If the notebook is not powered on, total recharge time for a completely discharged battery is approximately three hours (or five hours for two packs).
The status indicator LEDs above the keyboard indicate the state of the built-in AC adapter, as described in the previous section.

The AC power cord provided with the notebook is appropriate for the voltage of your local area. If you attempt to connect the notebook a wall outlet other than your local area, check the voltage of the outlet and use an AC power cord appropriate for the outlet.

Using Battery Power

The rechargeable lithium-ion battery pack allows you to operate the notebook without an external power source. When fully charged, a single battery pack can supply power to your notebook for up to 2 hours; much longer periods of time may be possible if the notebook's advanced power management features have been activated. You can also install a second battery pack in place of the floppy disk drive or CD-ROM drive, to double the capacity.

The amount of time a battery charge will last will depend on the notebook usage. Applications which heavily use the peripherals, like the floppy disk or the CD-ROM drive, will experience shorter power on time.

Low Battery Indication

When your notebook senses that the battery only has enough charge to continue for a few minutes, it will alert you to a low battery condition by blinking the red battery status LED and sounding a battery low warning beep. The remaining operating time depends on the power you are consuming: if you are using the audio system, PC Card slots, CD-ROM or hard and floppy disk drives, your notebook might run out of charge very quickly. You should always respond to the battery low indication by connecting to AC power or turning off your notebook, or suspending your notebook to disk. If you do not do so, the notebook will automatically suspend to disk (regardless of the setting of the *Suspend Mode option* in the Setup Utility) and turn off. The contents of the memory will be stored in the suspend-to-disk partition. You will be unable to restart the notebook until you have connected to AC or installed a fresh, charged battery.

If the notebook is in the Suspend to RAM mode when the battery is critically low, the notebook will attempt to Suspend to Disk (if enabled in the Setup Utility), and then turn off.

Charging the Battery

To recharge the battery, connect AC to the notebook as described in the previous section and turn off the notebook. Approximately three hours are required to fully charge a low battery(or five hours if two batteries are installed). The Battery Status Indicator lights in orange while the battery is charging. The indicator flickering in the recharge may indicate some trouble. Disconnect the notebook, extract the battery pack, re-insert it, and connect the notebook to AC again. If the indicator still flickers, the system has a problem.

- *If you have not used the notebook for a long time, the battery may become completely discharged. In such a case, recharging will take more time than usual.*
- *If you use the notebook for a while, the battery will become hot. The notebook starts recharging after getting back to the normal temperature.*

Maintaining the Battery Pack

You should discharge the battery pack if you do not use the notebook for a long time and should recharge it fully before use. If the battery is fully charged and left unused for a long time.

- The battery will discharge itself slowly, and
- The life of the battery will be shortened.

Lithium-ion batteries do not have so-called "memory effect,"and you do not have to deep discharge the battery pack before charging it.

Disposing of Battery Packs

The capacity of a battery pack is gradually decreasing while used repeatedly. Although the deterioration rate depends on the operating temperature and environments, the pack can sufficiently be used for 500 times, after which you should consider purchasing a replacement battery pack that is identical to the battery pack.

Your local area may have rules which you should follow regarding battery disposal. In addition to the main lithium-ion battery, you should remember the small backup battery located under the keyboard. Bring your notebook to a local dealer for replacement of this backup battery if your notebook begins to lose its time and date setting.

Backup batteries

The notebook has two backup batteries. The rechargeable NiMH battery prevents loss of data during replacement of the lithium-ion battery while in the suspend mode. However, this will not work if the battery level of the NiMH battery is low. Therefore, power-off or suspend to disk is recommended when replacing the lithium-ion battery.

The other backup battery is a non-rechargeable coin type Lithium battery for RTC.

Battery Precautions

Handling

- Never put the battery pack in a fire, as it could explode and cause injury.
- Do not attempt to open or alter the battery pack.
- Do not place the battery where it might get hotter than 60°C (140°F).
- Do not allow metal objects such as jewelry to short across the battery terminals, as it could heat up and explode.
- The battery includes a circuit breaker to help protect against short circuiting. However, covering or pressing this breaker switch hard could cause the battery to malfunction.
- Do not allow liquids to come in contact with the battery pack.
- Avoid dropping the pack, or other violent shock.
- Do not solder to the battery terminals.

Charging

- Charge the battery pack only with the notebook's built-in AC adapter.

Discharging

- Do not use the battery pack for any purpose other than powering the notebook computer.

Storage

- Store the battery pack in a cool and dry place. Never allow the temperature to exceed 60°C (140°F) during storage.
- Recharge the battery pack after storage, before use.

CD-ROM Drive

The built-in CD-ROM drive is accessible on the left side of the notebook. The drive supports all of the major compact discs, including CD-DA, CD-ROM XA (ADPCM), CD-I and Photo CD (multisession). You can use the drive to play music CDs, install and run programs, or you can install a battery pack in place of the CD-ROM drive.

The Sharp Player software provided with the computer allows you to use CDs. See the online help included with the software for use instructions.

Installing the CD-ROM Drive

Follow the steps below to replace a battery pack with the CD-ROM drive.

1. Turn off the power, then unplug the AC cord.
2. Place the notebook on a flat surface. While holding its left side, turn it upside down.
3. Slide the retaining levers inward and remove the battery.

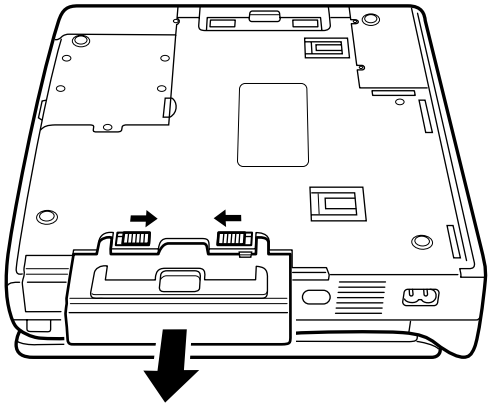


Figure 3-2. Removing the Battery Pack

4. Slide out the supplied blank battery filler cover.

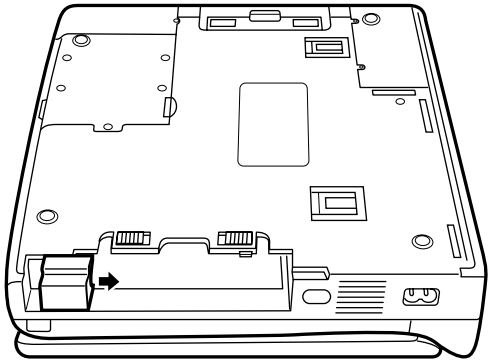


Figure 3-3. Removing the Blank Battery Filler Cover

5. Make sure the bottom of the CD-ROM drive is facing up, then push the connectors all the way into the notebook until the CD-ROM drive clicks into place; the retaining levers will slide out automatically.

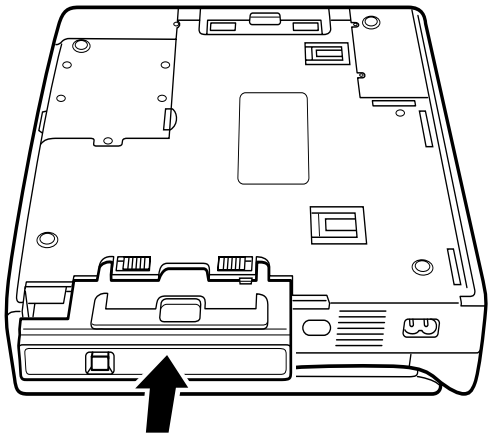


Figure 3-4. Inserting the CD-ROM Drive

Inserting a CD

1. Press the eject button to pop out the CD tray slightly.
2. Gently pull out the tray.

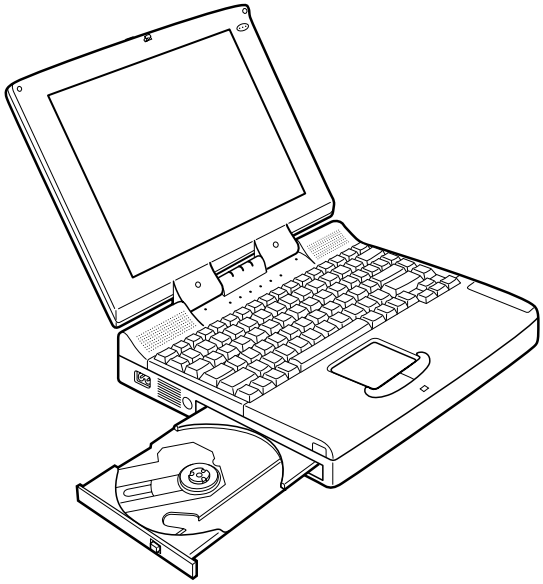


Figure 3-5. Opening the CD Tray

3. Place your CD, label side up, into the tray.
4. Slightly press the center of the CD until it clicks into place.
5. Gently push the CD tray back into the notebook.

- *When inserting a CD, do not use force.*
- *Make sure the CD is correctly inserted into the tray, then close the tray.*
- *Do not leave the CD tray open. Also, avoid touching the lens in the tray with your hand. If the lens becomes dirty, the CD-ROM may malfunction.*
- *Do not wipe the lens with materials with rough surface (such as paper towel). Instead, use a cotton swab to gently wipe the lens.*
- *FDA regulations require the following statement for all laser-based devices:*

  "Caution, Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure."

Removing a CD

1. Press the eject button to pop out the CD tray slightly.
2. Gently pull out the tray.
3. Remove the CD from the tray.
4. Gently push the CD tray back into the notebook.

- *When opening the CD tray, if the CD is still spinning, wait until it has stopped, then remove it.*
- *Do not remove the CD if the CD-ROM indicator LED is still lit; otherwise the notebook may malfunction.*

Floppy Disk

Floppy disks used by the notebook are made of magnetic material and enclosed in a protective plastic case. The case protects the magnetic surface of the disk against scratches, bending and dust. A shutter on the case opens automatically when inserted into the notebook's floppy disk drive, exposing the disk to the drive's read/write head, which can then retrieve, record or erase data on the disk's magnetic surface. When the system attempts to access a floppy disk, the disk starts to spin within its plastic casing, and the read/write head moves to the proper position on the disk and performs the operation you requested.

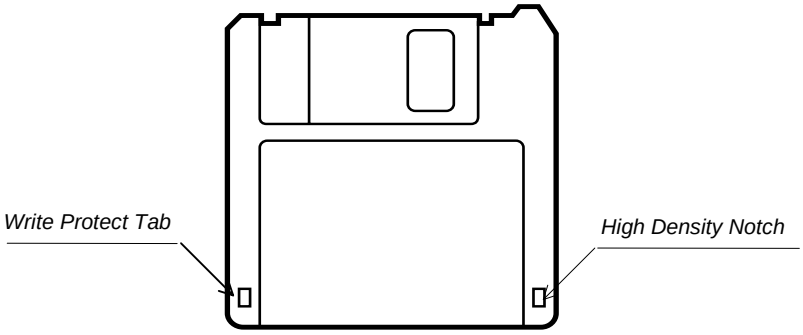


Figure 3-6. 3.5-Inch Floppy Disk

The notebook is equipped with a high-density 3.5-inch floppy disk drive, which can read and write to either double-density (2DD) 720KB floppy disk or high-density (2HD) 1.44MB floppy disk. Notice that both types of floppy disk have an arrow imprinted on the front upper left corner, and a sliding write-protect tab on the bottom left corner, as illustrated above. When opened, the write-protect tab prevents data from being written to, or erased from, the floppy disk.

Inserting and Ejecting Floppy Disk

1. To insert a floppy disk, hold it with the arrow facing up and towards the drive. Slide the disk into the drive until it clicks into place.
2. To eject a floppy disk, first ensure that the FDD indicator LED above the keyboard is off, and then press the eject button on the drive. When the floppy disk pops out of the drive, remove the floppy disk and store it properly.

Formatting a Floppy Disk Using Windows 95

Insert a new floppy disk into the floppy disk drive, double-click *My Computer* then click *3½ Floppy [A:]*. From the *File* menu, click *Format.* A dialog box appears to allow you to select some settings. Click *Start* to begin formatting. After completed, the floppy disk is now ready to use.

- *Never turn off or reset the notebook while the FDD indicator LED is on.*
- *Insert a floppy disk properly and gently.*
- *Do not give an impact on the FDD.*
- *Always store your disks in a safe, clean container, to protect them from the environment and magnetic fields.*
- *Do not install the floppy disk drive in the CD-ROM slot. The FDD can become stuck in the slot.*

Hard Disk Drive

Unlike a floppy disk, a hard disk drive is rigid and completely sealed in a protective, dust-free environment. A hard disk drive works very much the same as a disk, but it can retrieve and record data much faster and has a much larger storage capacity.
The notebook is equipped with a removable 2.5-inch integrated drive electronics (or IDE) hard disk drive. This type of drive embodies the latest in fast, reliable mass storage by integrating all the control circuitry necessary for operation directly onto the drive itself. This allows the drive manufacturer to carefully optimize drive performance.
You can also easily replace the hard disk drive, as it is installed in a special compartment to make it easily removable. Refer to Chapter 4 for details on how to replace the hard disk drive.

- *Make regular backups of your data files from your hard disk to floppy disks or other media.*
- *Never try to insert or remove the hard disk while the system is powered on. Doing so can result in loss of data, and can damage the system and the hard disk drive's sensitive circuitry.*
- *Never turn off or reset the notebook while the HDD indicator LED above the keyboard is lit.*
- *When your hard disk drive is removed from the notebook, always store it in a safe environment free from magnetic fields.*

Keyboard

The notebook provides all the functionality of a full-sized desktop 101- or 102-key keyboard. You should familiarize yourself with the special notebook function keystrokes which allow you to quickly and easily control and adjust such features as display brightness and access to power management.

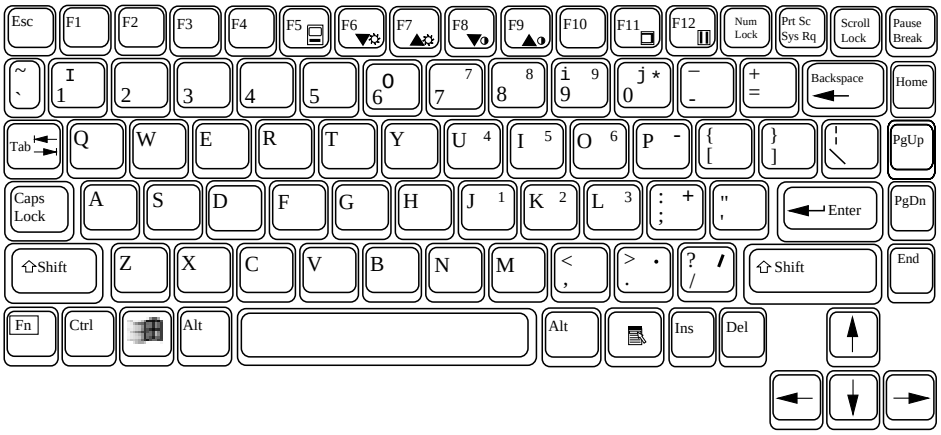


Figure 3-7. Keyboard Layouts

Windows Logo Keys

opens the Windows Start menu.

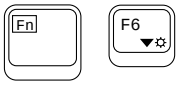
provides application-specific short-cut menu equivalent to the right button.

System Function Keys

The notebook has special system function keys which activate key functions printed on keys serving dual functions. When pressed in conjunction with the Fn or Ctrl key, these keys set specific system parameters and are sometimes referred to as “hot keys”.

toggles between video display output to the LCD screen, external CRT monitor, SimulScan (display on both), and the video out jack.

- *When you play video or animation, this key combination may not funktion.*
- *Do not use this key combination when connecting the notebook to TV.*



decreases LCD brightness.

increases LCD brightness.

toggles the display on or off.

puts the notebook in suspend mode (RAM or Disk, according to the setup selection). To resume normal operation from Suspend to RAM, press any key. To resume from Suspend to Disk, press the power switch.

halts all operation of your notebook and commands it to reset. This is known as a “warm boot”. The notebook will halt current operations and restart afresh. This key combination may be useful if you encounter hardware or software problems which “lock up” your notebook.

*Using the **Ctrl**+**Alt**+**Del** may result in loss of data from open applications.*

GlidePoint

Your notebook features GlidePoint, an integrated pointing device, connected internally to a PS/2 port and compatible with the Microsoft Mouse and IBM PS/2 mouse. The GlidePoint combines high resolution fingertip control and an ergonomic design equally suitable for left-handed and right-handed users. Most software applications will require use of the “left” button.

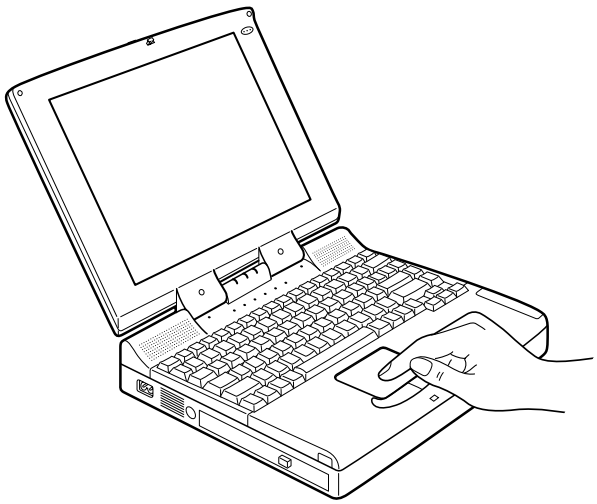


Figure 3-8. The Integrated GlidePoint

Using the GlidePoint

Take a moment to become familiar with how the GlidePoint works.

Place Your Fingertip

Place your left or right hand next to the GlidePoint, resting your wrist naturally in a relaxed manner. Place your thumb or forefinger on the GlidePoint.

Move Your Fingertip

The rectangular pad of the GlidePoint acts like a miniature duplicate of your display. As you slide your fingertip across the pad, the pointer on the screen, called the cursor, moves in the same direction across the screen as your fingertip moves across the pad. The GlidePoint is very sensitive and you don't need to exert much pressure on the pad at all. You'll get the best results by sliding your fingertip over the pad very lightly.

Point and Click

When you have placed the cursor over the icon, menu item or command that you wish to execute, you can press the left button once or twice to execute the command. This procedure is called "point and click" or "point and double-click". On the GlidePoint, you can execute point and clicking even more rapidly. Instead of clicking by pressing the left button, you can just tap gently anywhere on the rectangular pad of the GlidePoint. Tap twice rapidly to execute a double-click. Unlike a traditional pointing device, the whole pad acts as if it were a left button and each tap on the pad is equivalent to pressing the left button.

If you swap the left and right buttons, "tapping" on the GlidePoint as an alternative method of pressing the left button will no longer be valid.

Drag and Drop

You can execute commands or move files by using "drag and drop". In drag and drop, you activate a file by pointing to it and clicking. However, when you click the button, you do not release the button but instead hold it down. You can then drag the active file around the screen by moving your finger around the pad. When you have placed the file where you want it, for example in a new directory, release the left button. The file will drop into the new location. You can also do drag and drop operations using the GlidePoint as a large left button. Position the cursor over the item that you want to drag. Gently tap twice on the pad. On the second tap, keep your finger in contact with the pad. You can then drag the selected object around the screen by moving your fingertip across the pad. When you lift your fingertip from the pad, the selected object will drop into place.

Changing the Configuration

Double-click the *Mouse* icon in the Windows *Control Panel*. The *Mouse Properties* window allows you to change various configurations. For example, if you are a left-handed user, you can swap the buttons over so that you can use the right button to generate events that are normally generated by the left button. You can also change the size of the on-screen pointer, the speed of the pointer and so on.

Connecting an External PS/2 Mouse

If you connect an external PS/2 mouse to the notebook, both the GlidePoint and the PS/2 mouse are available for use.

Refer to the section of *Connecting a Keyboard or Mouse* in Chapter 4.

Video Subsystem

The built-in display is an active matrix which is adjustable to provide comfortable viewing.

Connecting an External Monitor

The notebook is equipped with a CRT connector for connecting an external monitor. See Chapter 4 for instructions on connecting your notebook to an external monitor.

Changing Resolution and Number of Colors

To change the resolution and the number of colors,

1. From the *Start* menu, select *Setting - Control Panel.*
2. Double-click *Display*.
3. Click the *Settings* tab.
4. Select the number of the colors in the *Color palette*, and select the resolution in *Desktop area*. Refer to the table on the next page.
5. Click *OK* twice.

- *You can select* High Color (16 bits) *or* True Color (24 bits) *in the* Color Palette. *High Color means 65536 colors; True Color means 16,770,000 colors. If you select True Color (24 bits), however, the LCD can display only 262144 colors.*
- *If you select* True Color*, the drawing speed of screen is decreased, screen noise may occur, and video capturing does not work.*
- *For the simultaneous display of CRT and LCD, use a monitor with 1024×768 resolution capability.*
- *If you select 640×400 resolution, a part of a window or dialog box may not be displayed in the screen area.*

Resolution and Colors You can Select

Resolution	Colors
640 × 400	256 64K
640 × 480	256 64K 16M
800 × 600	256 64K 16M
1024 × 768	256 64K

Switching Display Mode

You can switch the display mode in the following procedure.

1. From the *Start* menu, select *Setting - Control Panel*.
2. Double-click *Displa*y.
3. Click the *Monitor* tab.
4. Select *Center* or *Expand*.
5. Click *OK* twice.

In the Expand mode, you cannot capture video, and the drawing speed of screen is decreased.

PC Cards and Devices

The notebook is equipped with two PC Card slots which can accommodate two Type II or one Type III card conforming to the standards of the PCMCIA (Personal Computer Memory Card International Association). The slots accept a variety of PC Cards including ZV-port compliant cards. Some examples of PC Cards are:

- **Fax/Modem Card** A device that connects the notebook to the telephone line for use as a fax and/or a modem.
- **Network Interface Card** A device that connects the notebook to a local area network (LAN) such as an Ethernet or IBM 3270 network.
- **SCSI Interface Card** A device that enables you to connect SCSI devices such as MO drives, CD-ROM drives and scanners to your notebook through a SCSI connector on the SCSI card.
- **Sound Card** A device for sound recording and playback features (although one is already built in).
- **ATA Device** An AT Attachment, rotating or solid-state mass-storage device that works like an IDE hard disk drive. An ATA device does not require an external power source to maintain data when removed from the notebook's PC Card slot.
- **SRAM Memory Card** A static RAM memory device that can be formatted as a diskette, with a write-protect switch on the edge of the card. An on-card battery maintains the data when it is removed from the notebook's PC Card slot.

- *When using PC card utilities or drivers based on MS-DOS are located in the directory of PCM320. For their usage, refer to the file named MANUAL.DOC. Word for Windows or WordPad can read and print this file although some lines may not be displayed appropriately in WordPad.*
- *You cannot use ZV-port compliant cards in the upper slot nor with the port replicator.*

Inserting and Ejecting PC Cards

PC Cards are inserted and ejected in much the same way as floppy disks. The upper and lower slots both accept Type II cards. Therefore, you can insert up to two Type II cards at the same time. For Type III card, use the lower slot. When a Type III card is inserted, the upper slot cannot be used.

Note that some PC Card memory cards must be formatted before you can use them for data storage; see your PC Card manual for details.

1. Open the PC Card compartment cover on the right side of the notebook. (You do not have to power off the notebook to handle PC Cards when using Windows 95.)
2. Align the card with the appropriate slot and slide the card into the slot until it locks into place. The top of the card is identified by the manufacturer's label. The upper slot is identified as Socket 2, and the lower slot is identified as Socket 1.

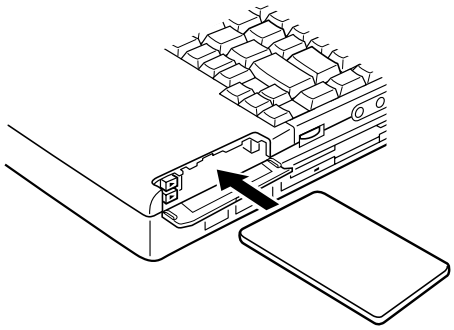


Figure 3-9. Inserting and Ejecting PC Cards

3. To eject a PC Card, click the PC Card Control icon on the taskbar, then the *Stop* button to stop using the PC card. Use a pointed object (such as a ballpoint pen) to press the appropriate eject button to pop out the card. Then remove the card and store it away properly.

Configuring the COM Port

When you use the notebook in the MS-DOS mode, some PC Cards use the COM3 or COM4 port which may conflict with the COM1 or COM2 port already used by other devices in the notebook. If your PC Card uses COM3, set the *COM1 Port*: in the Setup Utility to *Disabled*. If your PC Card uses COM4, set the *COM2 Port*: to *Disabled* or IR Type: to *Disabled*.

Infrared Communications

Using the IR port located on the right side of your notebook, you can wirelessly communicate with a Sharp electronic organizer, infrared-equipped computers and printers. Refer to the manual or online help of each application for the detail.

Positioning and Preparing the Notebook and the Target Device

Before you establish wireless communication, both the notebook and the target device should be properly positioned. Locate your notebook in a flat place and then place the target device so that their IR ports are in line and within approximately 30 inches (80 cm) of each other.

When using a Sharp electronic organizer, make sure they are within 15 inches (40 cm) apart.

Settings for Each Application

You need to set the IR type for each communication application.

Application	IR Type	Windows 95 IrDA Communication
TranXit (Variable mode)	IrDA	Disabled
Zrlink	ASK	Disabled
Import/Export	ASK	Disabled
Windows 95 Communication Application (Direct Cable Connection, etc.)	IrDA	Enabled

To adjust IR type,

1. From the *Start* menu, select *Settings - Control Panel*.
2. Double-click the *IR type* icon.
3. Select the appropriate IR type (ASK or IrDA).
4. Click *OK*.

Do not use the Setup Utility to adjust the IR type.

Enabling or disabling Windows 95 IrDA communication

Windows 95 IrDA communication is disabled by default. To enable it,

1. From the *Start* menu, select *Settings - Control Panel*.
2. Double-click *Infrared*.
3. Select *Options*.
4. Check the item of *Enable infrared communication on*.
5. Click *OK*.

Using Communication Applications in Windows 95

Your notebook assigns the physical IR port to COM2 while the Windows 95 assigns the logical IR port to COM4 as default. To use Windows 95 communication applications such as the Direct Cable Connection, you need to select COM4 for the logical IR port in the application. Refer to Windows Help for details.

Modem

You can use the modem built in your notebook, for data transfer, fax communication and voice communication.

Connecting the Modem to Telephone Line

1. Connect one end of the attached modem cable to the modem jack on the right side of your notebook.
2. Connect another end of the cable to the telephone line.

Using Communication Software

To use communication software,

1. Turn on your notebook.
2. Press the **F2** key when the message *Press <F2> to enter Setup* appears.
3. On the *Advanced* page of the Setup Utility, set the *COM1/COM2 Function* to *FAX Modem/IR* or *Serial Port/FAX Modem*.
4. If you assign the modem to COM1, set the *COM1 Port* to *3F8, IRQ4*. If you assign the modem to COM2, set the *COM2 Port* to *2F8, IRQ3*.
5. On the Power page of the Setup Utility, set *Suspend Mode* to *Suspend to RAM*.
6. Set *Modem Power when Suspend RAM* to *Enabled*.
7. Set *Auto Suspend to Disk* to *Disabled*.
8. Press the **Esc** key and select *Save Changes & Exit*.
9. In the communication software, set the items such as COM ports, baud rate, etc. Refer to the software manual or online help or the manual of Windows 95. (When using commands, refer to *AT Command Reference Manual*.)

The modem is available in the U.S. only.

Audio System

The audio capabilities of the notebook's stereo speakers add sound to your software applications, including features like an FM synthesizer, and digital recording and playback. It is compatible with the Sound Blaster 16, and includes a number of applications which allow you to record, compress, store and playback voice, sound and music in the Windows environment. You can hear all the digital sound effects and voice recordings used by the latest entertainment software.

Audio Hardware

Let's take a look to the notebook's built-in speakers, microphone and audio jacks.

Stereo Speakers

On either side of the LCD screen hinges are stereo speakers. The speakers are connected internally to the notebook's integrated audio system.

Microphone

The microphone allows you to record voice annotations and attach them to documents using the notebook's integrated audio system with supported software applications.

You can greatly improve the fidelity of your audio output and input by using external speakers and microphones.

Audio Connectors

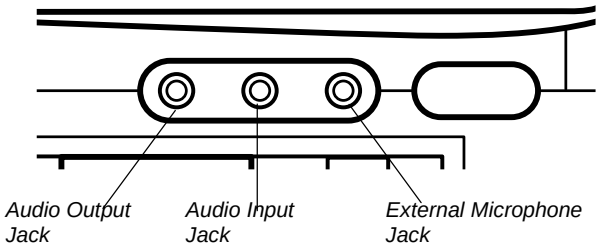


Figure 3-10. The Audio Connectors

You can find the audio connectors on the right side of the notebook, just above the floppy disk slot.

External Microphone Jack

You can connect an external dynamic microphone for use in place of the notebook's built-in microphone.

Audio Input Jack

You can feed an audio signal, such as from a compact disc or tape recorder, into the notebook's integrated audio system through this jack.

Audio Output Jack

You can connect a set of headphones, external speakers with amplifier or an audio recording device to this jack.

Audio Features

The notebook's audio capabilities include the following features:

- Digitized audio playback capability (up to 44kHz), which faithfully plays back and reproduces all kinds of digitized sounds with a 16-bit Digital-to-Analog Converter (DAC). The audio system works with a number of applications that utilize the digital voice channel to deliver realistic human speech and sound effects.
- Digitized audio recording capability (up to 44kHz) allowing digitization and recording of any kind of sound through the notebook's built-in microphone or an external source.
- High quality sound, dynamically filtered for low noise digital recording and playback. Input from the notebook's built-in microphone uses Automatic Gain Control (AGC) to compress sound input to adapt dynamically to different recording conditions.
- Audio compression which offers real-time compression and decompression of digital audio. Compression turns large sound files into smaller files that can easily be stored and transferred to a diskette or even sent over a network.
- Built-in power amplifier and speaker, including volume control, and an audio out port for connection to an external pair of stereo headphones or speakers.

1. *When using the built-in microphone*
   - *For recording, make sure AGC is on and turn down the speaker volume to avoid audio feedback.*
   - *For playback, with AGC off, turn down the speaker volume or mute the microphone to avoid audio feedback.*
2. *When using an external microphone, make sure AGC is on.*

Turning on Automatic Gain Control

1. From the *Start* menu, select *Programs* - *Accessories* - *Multimedia* - *Volume Control*.
2. Select *Options* - *Properties*.
3. Select *Recording* in *Adjust volume for* and check *Microphone* in *Show the following volume controls:*.
4. Click *OK*.
5. Check *Advacned Controls in the Options menu*. The *Advanced* button appears.
6. Click the *Advanced* button.
7. Check *1 Automatic Gain Control*.
8. Click *Close*.

To turn off the AGC, uncheck *1 Recording Input Monitor* in the step 7.

Adjusting Volume

In addition to the software controls in Windows 95, the volume control on the right side of the notebook can be turned to adjust volume.

Audio Software

The audio system supports a large library of third party software. Most third party software packages include music/sound drivers. All you have to do is select the correct music/sound driver when you install the package, or follow the package's instructions for selecting the driver. You may select the Windows Sound System, or Sound Blaster 16.

CHAPTER 4

Connecting Peripherals

This chapter describes how to attach optional devices to your notebook. You can attach a printer, connect an external monitor and keyboard, a mouse or modem, or any other peripheral device that connects to a parallel, serial or PS/2 keyboard/mouse port.

Handling Precautions

The notebook's components are easily damaged by static electricity. Observe the following precautions while handling components and performing upgrades:

- Power off the notebook before you do any system expansion.
- Before handling system components, carefully discharge static electricity from your body by touching an unpainted metal area. While performing upgrades, ground yourself frequently to discharge any static electricity that may accumulate on your body.
- Avoid touching the integrated circuits on a memory module. Handle all components by the edges.
- Do not handle a component at a place where static electricity is easily generated, such as on carpet.
- Store a memory module in the anti-static wrapping or other conductive shield such as aluminum foil.
- Keep a memory module in the anti-static wrapping until installing it.

Installing a Memory Module

The notebook allows you to expand system memory via two on-board SO-DIMM (Small Outline Dual Inline Memory Module) sockets. The SO-DIMM sockets are easily accessible and can accept optional CE-501B (4MB×2), CE-502B (8MB×2), or CE-503B (16MB×2) memory modules, which are available from your dealer. Always install in pairs of two memory modules.

To upgrade memory on the notebook follow the steps below:

1. Review the section on handling precautions at the beginning of this chapter.
2. Pull out the locking knob on the left side of the notebook, and open the PC card slot cover on the right side.

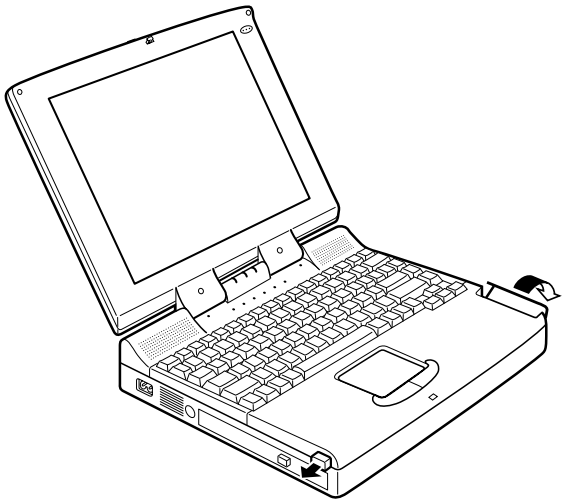


Figure 4-1. Unlocking the Memory Expansion Cover

3. Open the memory expansion cover.

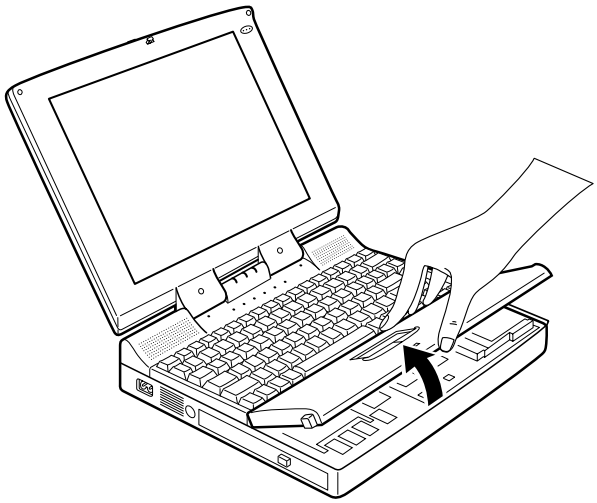


Figure 4-2. Opening the Memory Expansion Cover

4. Remove the memory module from its anti-static wrapping.
5. Hold the memory module so that the edge connector is pointed towards the socket. Make sure the notch on the corner of the memory module mates with the notch on the socket.
6. Insert the memory module into the lower socket. Gently move the memory module back and forth until it is firmly seated.

7. Slowly move the memory module to a horizontal position until the locking tabs snap into the retaining notches or holes at each end of the module.

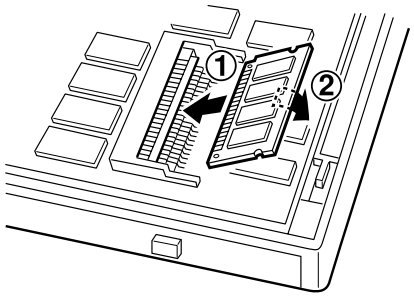


Figure 4-3. Securing the Memory Module

8. Repeat the same for the other memory module into the upper socket.
9. Close the memory expansion cover. Then close the PC card slot cover and return the locking knob to its original position.

Removing Memory Modules

To remove a pair of memory modules, for example, when you replace the pair with another pair of modules of a larger capacity, follow these steps:

1. Open the memory expansion cover as described in the *Installing a Memory Module* section.
2. When removing, be gentle and always start from the memory module on the top.
3. Push the retaining notches which secure the memory module outwards until the memory module comes out of the nothces. Gently move the memory module upward and remove it.
4. Repeat the same with the other memory module of the pair.

Changing the Hard Disk Drive

You can easily remove the hard disk drive for upgrade or exchange with another optional hard disk drive (CE-A40HD).

To remove or replace the hard disk drive, follow the steps below.

Before changing the hard disk drive, be sure to power off the notebook and wait 10 seconds or more. Not doing so could damage the system and hard disk drive's sensitive electrical circuitry, and result in loss of data.

1. Power off the notebook, then disconnect the AC cord.
2. Position the notebook on a flat surface, then lift the notebook by the left side and turn it upside down.
3. Remove the hard disk drive screw and gently take out the hard disk drive.

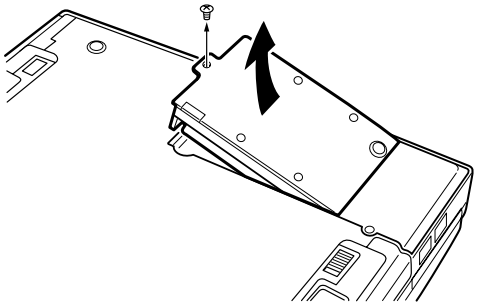


Figure 4-4. Removing the Hard Disk Drive

4. Detach the cable to completely remove the hard disk drive.

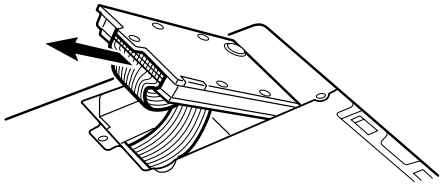


Figure 4-5. Detaching the Cable

5. Connect the cable to the new hard disk drive.
6. Fasten the hard disk drive screw removed earlier in step 3.
7. Turn the notebook upside down again. The new hard disk will be automatically configured by the Setup Utility.

- *Do not give a shock to the hard disk.*
- *Do not touch the connectors on the hard disk.*
- *Make regular backups of your data files from your hard disk to diskettes.*
- *Never try to insert or remove the hard disk while the system is powered on. Doing so can result in loss of data, and can damage the system and the hard disk drive's sensitive circuitry.*
- *Never turn off or reset the notebook while the HDD indicator LED above the keyboard is lit.*
- *After removing the hard disk, always keep it in a safe environment free from magnetic fields.*

Changing the Battery

If you plan to make frequent and prolonged use of the battery pack while traveling, you may want to consider the purchase of an optional CE-A40EB battery pack from your dealer, and keep it with you in fully charged state as a backup. Install the second battery pack in place of the CD-ROM drive or the 3.5-inch floppy drive.

There is danger of explosion if the battery is incorrectly replaced. Replace the battery only with Sharp's optional battery packs. Discard used batteries according to the dealer's instructions.

Battery Life

The following table summarizes the battery life.

Installed Battery Pack	Charge Time Required (From Fully Discharged to Fully Charged)	Battery Life (When Fully Charged)
One	About 3 hours	2 hours
Two	About 5 hours	4 hours

The battery life depends on the power management settings, application software, etc. For details on installing the battery pack, see the *Installing the Battery Pack* section in chapter 1.

Sharp sells other battery packs, but use only the CE-A40EB.

Changing the CD-ROM Drive or Floppy Disk Drive

The CD-ROM drive and the floppy disk drive are interchangeable with the battery packs. Installation is the same as described above for the battery pack. When the floppy drive is installed, it is accessible as drive A: to DOS and the Windows Explorer. When the CD-ROM drive is installed, it is accessible as drive R:. Refer to the section of *CD-ROM Drive* or *Floppy Disk* in Chapter 3.

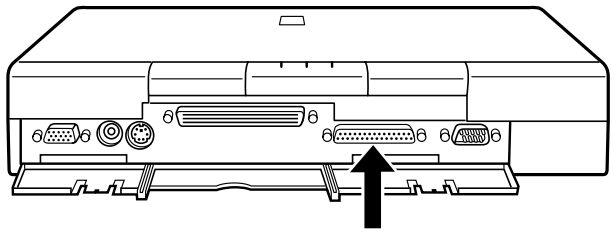
Connecting a Printer

The notebook has both a parallel and a serial interface. You can easily connect your notebook to a printer that has either of these types of interfaces, by following the instructions below.

Before you begin, read the manual of your printer and determine the type of its interface. If your printer supports both a parallel and a serial interface, it is recommended that you configure your printer to use the parallel interface, which is faster and easier to configure than a serial interface. Note that the notebook's parallel port also supports the latest EPP and ECP parallel port protocols for improved performance and versatility with compliant printers. However, you need the special printer driver to use EPP protocols.

To connect a printer to the notebook, follow these steps:

1. Be sure both the notebook and the printer are turned off.
2. Open the I/O port cover at the rear of the notebook with your finger and locate the ports labeled parallel and serial.
3. If you are using a parallel interface, connect the 25-pin male connector of your printer cable to the 25-pin female parallel port on your notebook. If you are using a serial interface, connect the 9-pin female connector of your printer cable to the 9-pin male serial port on your notebook. Note that if your serial printer cable is equipped with a 25-pin connector, you will need an adapter that converts 9-pin serial output to 25-pin output.
4. If necessary, attach the other end of your printer cable to your printer, and tighten any retaining screws. A typical parallel printer connection is illustrated below.



Printer Connector (Parallel Port)

Figure 4-6. Connecting a Printer (Parallel Port)

5. Power on the printer and any other peripheral devices you may have connected to the notebook, and then turn on the notebook.
6. If necessary, run the notebook's Setup Utility to configure the parallel port to respond as required by your printer and software operating environment.
7. The newly connected printer must be configured in Windows. Refer to the Windows 95 manual for details on setting up a printer. You can also refer to the manual which accompanied your printer for instructions on configuring your operating environment and application software to use the printer.

Connecting an External Monitor

Follow the instructions below to use an external monitor with the notebook.

1. Be sure that both the notebook and the external monitor are turned off.
2. Open the I/O port cover at the rear of the notebook and locate the 15-pin female CRT connector.
3. Connect the appropriate end of the monitor cable to the CRT connector on your notebook. Connect the other end of the monitor cable to your monitor and tighten monitor cable connector retaining screws.
4. Connect the monitor power cable to the monitor, and plug the monitor power cable into a wall outlet.
5. Power on the monitor as well as any other peripheral devices you may have connected to the notebook, and then turn on the notebook.

You can switch the display output by pressing **Fn**+**F5** key combination in the order: CRT (when connected) → LCD → CRT&LCD →CRT. For the simultaneous display of CRT and LCD, use a monitor with 1024 × 768 resolution capability. Refer to *Video Subsystem* section in Chapter 3 for the possible resolutions for the CRT.

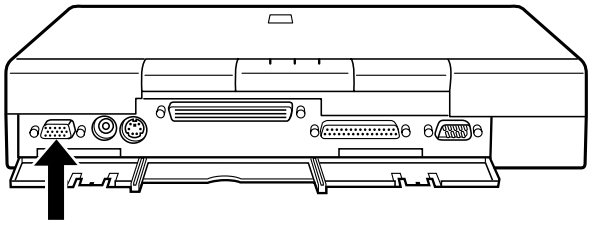


Figure 4-7. Connecting an External Monitor

You can also connect a composite video monitor, such as is used for TV signals, to the video out jack. However, the resolution available at this jack is limited to 640 × 400 pixels. The signal at this jack is also selectable with the **Fn**+**F5** key combination.

Connecting a Serial Device

You can easily attach a serial device to the notebook, such as an external modem or pointing device, by following the steps below.

1. Be sure the notebook and any other peripheral devices you may have connected to the notebook are turned off.
2. Open the I/O port cover at the rear of the notebook and locate the 9-pin male serial port.
3. Attach the interface cable from your serial device to the notebook's serial port. If necessary, attach the other end of the interface cable to your serial device. Tighten down any retaining screws.

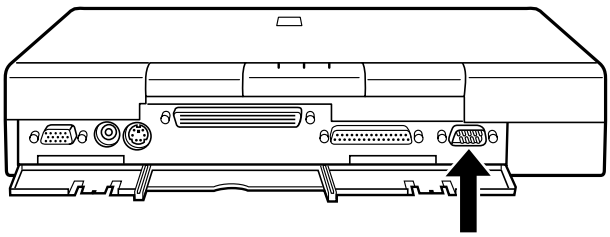


Figure 4-8. Connecting a Serial Device

4. Power on any other peripheral devices you may have connected to the notebook, and then turn on the notebook.

Refer to the manual which accompanied your serial device for instructions on configuring your operating environment to recognize the device.

When connecting a serial mouse to your notebook, disable the GlidePoint. Refer to the next page.

5. On the *Advanced* page of the Setup Utility, set *COM1/COM2 function* to *Serial Port/IR* or *Serial Port/Fax modem.*

Connecting a Keyboard or Mouse

If you wish to use a full size desktop keyboard or external PS/2 mouse with your notebook, follow the instructions below.

1. Be sure that the notebook is turned off.
2. Locate the PS/2 keyboard/mouse port on the rear of the notebook.
3. Attach the PS/2 cable from your mouse or keyboard cable to the PS/2 keyboard/mouse port, as illustrated below.

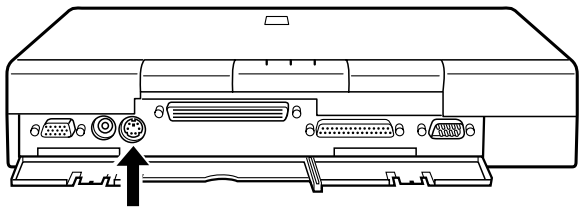


Figure 4-9. Connecting an External Keyboard or PS/2 Mouse

4. Power on any other peripheral devices you may have connected to the notebook, and then turn on the notebook.

Never connect or disconnect PS/2 devices to the PS/2 keyboard/mouse port when the notebook is powered on. This may cause the notebook to malfunction.

GlidePoint Control

When connecting a mouse to your notebook, disable the GlidePoint. When disconnecting, enable back the GlidePoint.

1. From the *Start* menu, select *Programs - SHARP Applications - GlidePoint Control*.
2. Select *Disables* or *Enables GlidePoint*.
3. Click *OK*.

- *Make sure the mouse is enabled before disabling the GlidePoint. If the mouse is not enabled, the cursor does not move when you move the mouse.*
- *If the system enters the suspend mode while the GlidePoint is disabled, the GlidePoint becomes enabled after resuming from the suspend mode.*

Connecting Audio/TV/Video Equipment

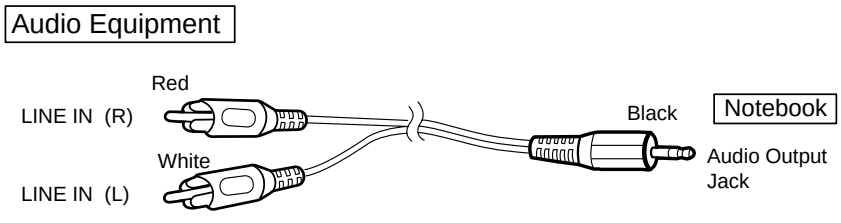
You can connect the notebook to an audio, TV, or video equipment, using the steps below.

In some countries, the video output jack of your notebook is not available.

Connecting Audio Equipment

1. Turn off the power to the notebook as well as any connected peripherals.
2. Use the following audio cable for the connection:

   To output the notebook's audio signal to the audio equipment:



   To input audio signal from the audio equipment to the notebook:

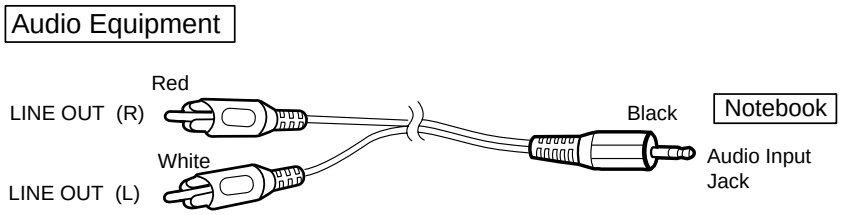
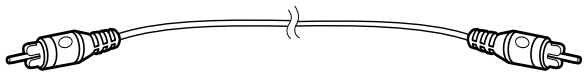


Figure 4-10. Connecting Audio Equipment

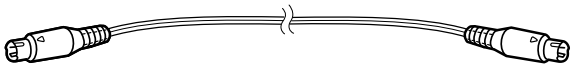
Connecting Video Equipment

1. Turn off the notebook and its peripherals.
2. Connect one end of an attached cable to the output terminal of the video equipment, and connect the other end to the video input jack or S video connector of your notebook.

   When inputing normal video signals to the notebook, use the TV cable.



   When inputing S-video signals to the notebook, use the S-video cable.



3. Turn on the notebook.
4. Press the **F2** key when the message *Press <F2> to enter SETUP* appears.
5. On the Main page of the Setup Utility, set *Video Input* to *Video Capture*.
6. Press the Esc key and select Save Changes & Exit. The system restarts.

Connecting TV

1. Turn off the power to the notebook as well as any connected peripherals.
2. Plug one end of the video cable into the video output jack on the notebook.
3. Plug the other end into the video input jack of the TV.
4. Turn on the power to the TV as well as the peripherals.
5. Power up the notebook.
6. Switch the TV to the video mode.
7. From the Windows *Start* button, select *Settings - Control Panel*.
8. Double-click *Display*.
9. Select *Settings*.
10. Set *Color palette* to *256 Color* or *High Color (16 bit)*, and *Desktop area* to *640 × 400* pixels. Then click *OK*.

11. Click *Yes* to restart the system.
12. From the *Start* menu, select *Settings - Control Panel - Display*.
13. Select *Monitor*.
14. In *Monitor Select*, select *TV*.
15. Click OK. The screen is switched from the LCD to the TV.
16. To the question “Do you want to keep this setting?” click *Yes*. Switching is completed.

- *To output to a TV using the video output jack, do not connect an external monitor to the CRT connector.*
- *If your country applies the broadcast and video standard as NTSC (National Television Standards Committee), you cannot connect a TV to your notebook in the country whose standard is PAL (Phase Alternate Line).*

Restoring to LCD Display

1. From the *Start* menu, select *Settings - Control Panel - Display*.
2. Select *Monitor*.
3. In *Monitor Select*, select *Panel*.
4. Click *OK*.

Port Replicator

If you need additional ports for the notebook, you can attach the CE-A40PR Port Replicator to the expansion bus connector on the back while the notebook is turned off. This allows you to quickly detach or re-attach your system from or to your office or work desk apparatus.

To install the port replilcator

1. Turn off the notebook.
2. Push down to open the cover of the expansion bus connector on the rear side of the notebook.

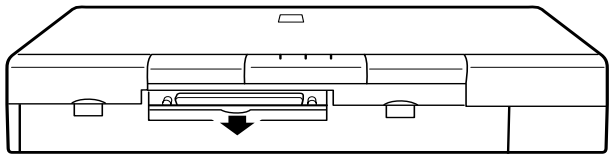


Figure 4-11. Opening the cover of the expansion bus connector

3. Connect the port replicator to your notebook. Refer to the manual provided with the port replicator.

- *If your country applies PAL (Phase Alternate Line) as the broadcast and video standard you cannot use vido output jack on your port replicator.*
- *When using PC card slots of the port replicator, use the PC card driver preinstalled in your notebook. Do not use the driver in the supplemental disk attached to the port replicator.*

Appendixes

The appendixes which follow contain additional and more advanced information on the use and care of your notebook as well as detailed technical specifications.

Appendix A: Care and Maintenance

This appendix provides you with information on how to maintain the notebook in top working condition.

Environment

When using or storing the notebook, try to ensure that the temperature and humidity of the surroundings are within the following ranges:

Temperature

Operating: 10°C to 35°C (50°F to 95°F)
Storage: –20°C to 60°C (–4°F to 140°F)

Relative Humidity (Non-condensing)

Operating 20% to 80%
Storage 10% to 90%

Travel

The notebook is designed for portability. For safety and convenience when traveling, please follow these guidelines.

- Before traveling, save your data by backing it up onto diskettes.
- Take along an extra backup copy of your data.
- Do not travel with a diskette in the drive.
- Do not travel with the notebook powered on. This may result in loss of data and/or damage to the hard disk drive.
- Disconnect AC from the notebook.
- Take along a spare, fully charged battery pack, or AC cord.

When carrying the notebook, take care not to bump it into things.

Maintenance

The notebook requires little physical maintenance. As with any piece of electrical equipment, however, you should follow a few simple maintenance routines and precautions so that your notebook could provide outstanding performance for many years to come.

- Check the AC power cord and power connectors periodically for damage. Replace the power cord immediately if damage is found.
- Keep your notebook away from rain, snow, excessive humidity, direct sunlight, high temperatures, and extreme cold.
- Try not to smoke near your notebook.
- Try not to eat or drink near your notebook to avoid spillage.
- Try to avoid dusty environments since dust can cause damage to your disks and drives.
- Never subject your notebook to sudden shocks or extreme vibration. Do not drop it or hit it with other equipment.
- If you suddenly move your notebook from a cold place to a warm place, undesirable moisture may condense inside the unit. After sudden temperature changes, allow the notebook to come to room temperature before you begin using it. This allows any moisture inside the notebook to evaporate.

The LCD Screen

- Avoid scratching the surface of the screen.
- Do not leave water droplets on the screen. Water can cause permanent staining.
- Do not expose the LCD screen to bright sunlight or ultra-violet radiation.
- Do not expose the LCD screen to extreme temperatures. Freezing and liquefaction of the liquid crystals may result in damage to the display.

Cleaning the Notebook

Cabinet

Apply a small amount of dust remover to a dry, lint-free cloth and wipe the cabinet with the cloth.

- *Do not use alcohol, benzene, thinner or other strong chemical agents that may damage the cabinet.*
- *Never clean the notebook while it is powered on.*

Screen

The surface of the screen may become smeared and accumulate dust during use. Try not to touch the screen with your fingers when using the system. Apply a small amount of dilute neutral detergent to a dry, lint-free cloth, and gently rub the surface of the screen with the cloth.

IR Port

Always keep the IR port clean, as dust on the port will interfere with data transfer. Use a soft, dry cloth to wipe the IR port.

GlidePoint

Use a soft, dry cloth to wipe the GlidePoint.

CD

Use a soft, dry cloth to wipe a CD straight out from its center. Do not wipe in any other directions or the disc may become damaged. Also, do not use for cleaning the following materials such as chemicals, cleanser, record spray, anti-static spray etc.

Appendix B:
Recreating the Suspend-to-Disk Partition

51MB of your hard disk space has been reserved as the suspend-to-disk partition when shipped from the factory. This means you can safely suspend to disk if the notebook has 48MB of installed memory, 16MB of default plus 32MB of additional memory module. The extra 3MB allows for the overhead of the program and data held in video memory.
If you have destroyed the suspend-to-disk partition for any reason, you can create the partition by the following steps.

You can back up your data in several ways, depending on the kind of software and hardware you have access to. The backup described below uses the Backup tool of Windows, and the floppy disk drive. This may not be the most convenient backup method, but it does not require any software or hardware that is not supplied with the notebook.

Carefully follow the steps below to create a new suspend-to-disk partition. Since creating a new suspend-to-disk partition destroys all the data on the hard disk, you must first backup all the data on the hard disk drive.

The entire procedure includes the following steps:

- Backing up all the data of the hard disk
- Deleting the current suspend-to-disk partition
- Deleting the partition that contains current files
- Creating the new suspend-to-disk partition
- Restoring the system

You should prepare the following items:

- Backup CD-ROM.
- CD-ROM Setup Boot Disk.
- Two or more boxes of 1.44 MB diskettes, depending on how much you have used your hard disk.

Backing up all the data of the hard disk

1. From the Start menu, select *Help*.
2. Open the topic on Backup.
3. Start Backup from the Help windows.

Deleting the current suspend-to-disk partition

1. Insert the CD-ROM Setup Boot Disk into the floppy disk drive.
2. Reboot the notebook.
3. Press F2 when the message *Press <F2> to enter SETUP* appears.
4. On the Main page of Setup Utility, set *Boot Sequence* to *A: Then C:*.
5. On the Security page, set *Fixed disk boot sector* to *Normal*.
6. Press the Esc key and select *Save Changes & Exit*.
7. When the system restarts, the following message appears:

   Do you want to set up Windows 95?
   (To change the suspend-to-disk partition, select N.)
   [Y/N]
8. Press the N key. *A:*\ prompt appears.
9. Type PHDISK /DELETE /PARTITION and press Enter.

Deleting the partition that contains current files

Following the above steps,

1. Type FDISK and press Enter.
2. Select *3. Delete partition or Logical DOS Drive* and press Enter.
3. Select *1. Delete Primary DOS Partition* and press Enter.
4. Press the Enter key, input the volume label and press the Enter key again.
5. Press the Y key and then the Enter key.
6. Press the Esc key twice.
7. Press the Ctrl+Alt+Del keys simultaneously to restart the system.
8. Press the N key.

Creating the new suspend-to-disk partition

At the *A:*\ prompt, type PHDISK /CREATE /PARTITION and press Enter.

Creating the new suspend-to-disk partition

The size of the suspend-to-disk partition is automatically difined as the total of the current memory size and extra 3 MB. If expanding the memory size after creating the suspend-to-disk partition, you should recreate the partition to renew its size.

Restoring the System

1. Re-install Windows 95, consulting *Re-installation Instructions* attached to your notebook.
2. Restore the backup data according to Windows Help.
3. On the Main page of Setup Utility, set *Boot Sequence* back to *C: Then A:*.
4. On the Security page, set *Fixed disk boot sector* back to *Write protect*.

Appendixes

Appendix C: Troubleshooting

This appendix provides information on pinpointing and solving common problems that you may encounter using the notebook.

Problems with your notebook can be caused by something as minor as an unplugged power cord or as major as a damaged hard disk drive. The information in this appendix is designed to help you find and solve minor problems. If you still have a problem after trying all the suggested remedies in this appendix contact your dealer.

The problems that you might encounter can be divided into two basic categories: hardware and software. Hardware problems can be further divided into being of an electrical or a mechanical nature. You will know you have a hardware problem if, for example, the screen is blank, the notebook cannot recognize the disk drives, or you get an error message during the Power-On Self Test (POST).

Software problems can occur at several levels. Both your operating system and your software application programs are capable of generating errors and error messages. If you encounter a software error, try to determine if the error message is from your operating system or from an application program, and refer to the appropriate manual for possible remedies.

You can also refer to the Windows 95 manual or Windows Help program to solve the problem. To access the Help program, click the *Start* button, then point to *Help*. It also gives you Troubleshooting tips and Index.

Common Problems

Successful troubleshooting is the result of careful observation, deductive reasoning, and an organized approach to solving the problem. If you encounter a problem, begin by performing a careful visual inspection. Check the exterior of the notebook first. If no lights are displayed, check the battery charge or power outlet, the plug and power cord, and any power switches that may affect your notebook. If the notebook has been connected to any peripheral devices, look for loose or disconnected cables. You may also need to check the fuses and breakers in your electric box.

A few common problems and suggested solutions are presented in the examples which follow.

Question: Why doesn't the power switch function?

- The power switch does not accept just a light touch. Depress the switch firmly.

- If operating from a battery, it may be discharged. Connect the AC cord.
- Disconnect any peripherals such as an external mouse or keyboard, depress the hardware reset switch on the bottom side of the notebook to reset the notebook.

Question: Why can't I start up the notebook?

- Use a diagnostics software available commercially to check the notebook. If you find the hard disk is damaged, you can format the hard disk by executing the FORMAT command from the CD-ROM Setup Boot Disk, then restore the software using the created disks (you will lose any data files you have not backed up). If the Windows system files on your hard disk are damaged, re-install Windows 95 from the CD-ROM Setup Boot Disk and Backup CD-ROM.

Question: Why is the screen blank?

- Press the **Spacebar** to see if any power management feature has blanked the screen to save power.
- Check the indicator LEDs above the keyboard to verify that the notebook is getting power. If the power indicator is not lit, check the electrical outlet, the plug and power cord, and any power switches that may affect your notebook.
- If you are using a battery pack, make sure it has a charge remaining, and that it is installed correctly.
- Check the brightness controls for your display.
- Reset the notebook by pressing the **Ctrl+Alt+Delete** keys.
- Turn the notebook off, wait a few seconds, and then turn the notebook back on.

Question: Why can't I use a floppy disk?

- The floppy disk may not be formatted, or could be corrupted.
- If you can't write to a floppy disk, the disk may be write-protected. Eject the disk and ensure that the write-protect tab covers the detection hole.
- If you can't write to a floppy disk, the disk may be full. Use another disk.
- The system BIOS boot settings for the floppy disk drive type is incorrect. In the Setup Utility, ensure that Drive A: is set to the proper type (1.44 MB) and that Diskette Controller is enabled.

Question: Why do I get a non-system disk or disk error message?

- You may have inserted a non-bootable disk in Drive A: (either a defective disk or one without an installed operating system). Remove the disk.
- Check the Setup Utility to ensure that the drive types are correctly identified.
- If this message is issued when you attempt to boot from your hard disk drive, insert a bootable disk and check the integrity of your hard disk drive.

Question: Why is the date and/or time incorrect?

- Correct the date and time using the Windows Control Panel or the Setup Utility.
- If the date and time are still incorrect when you reboot, contact your dealer to change the CMOS backup battery on the system board.

Question: Why can't I recharge the battery?

- If the notebook has been left unused for a long time, the battery may have become completely discharged. In this case, it may be necessary to connect AC for a few hours before the battery begins to recharge normally.

Question: Why can't I communicate through the built-in modem?

- Confirm the telephone line is properly connected tothe modem jack.
- Confirm the COM1/COM2 Function in the Advanced Menu of the Setup Utility is set to *FAX modem/IR or Serial Port/FAX* modem.
- If using the notebook in the MS-DOS mode, confirm the setting of the communication port in the communication software is complied with the one in the Advanced Menu of the Setup Utility. When you set the COM1/COM2 Function to *FAX modem/IR*, the communication port is COM1; when you set it to *Serial Port/FAX modem*, the communication port is COM2.
- Read also Troubleshooting in the modem manual.

Question: Why can't I print?

- Double-click *My Computer*, then *Printers*. Confirm your printer is installed here. If not, click *Add Printer* to install your printer.
- Double-click *My Computer*, then *Printers*. Confirm printer output is set to MSFax.
- See also the *Printer Problems* section in the Windows Help Index.

Question: Why does the PC Card not function when I use the COM interface?

- The card may be attempting to use COM3 or COM4 ports in a manner that conflicts with the COM1 or COM2 port being used by another device. You may be able to resolve the conflict by running the Setup Utility to change the COM port settings. If your PC Card uses COM3, set the *COM1 Port*: setting to *Disabled*. If your PC Card uses COM4, set the *COM2 Port*: setting to *Disabled* or IR Type: setting to *Disabled*.

Question: Why can't I use an SRAM or Flash card?

- To use an SRAM or Flash card, you need to enable the card drivers. Remove "REM" from the following lines of CONFIG.SYS file, using Windows Notepad, then save the file and reboot.

```
REM device = C:WINDOWS\SYSTEM\CSMAPPER.SYS
REM device = C:WINDOWS\SYSTEM\CARDDRV.EXE /SLOT=2
```

When the port replicator is connected to the notebook, the slot number has to be "4".

Question: Why can't I produce sound?

- Confirm the sound driver is installed. From the Windows Control Panel, click *System*, *Device Manger* tab, then *Sound, video and game controllers*. Verify the *Audio Driver* is installed. If not, install the driver from the *Add New Hardware applet* in the Control Panel.
- Check the Windows volume control and mute button. Click the speaker symbol beside the clock on the taskbar to open the *Volume Control* window.
- Is the Volume control on the right side of the notebook turned down?

Question: Why does the communication software not function?

- To use some communication software, you have to turn off the power management. In the Windows *Control Panel*, double-click the *Power* icon, and set *Power management* to *Off*. After using the communication software, set *Power management* back to *Advanced* or *Standard*.

The POST Error Messages

The notebook performs the Power-On Self Test (POST) every time you turn on or reset the system. The POST is a series of system checks that verifies the correct operation of your notebook's hardware.

If the POST detects a critical error (e.g., a system board failure), the notebook will halt and generate an audible alarm. If a failure is detected in an area other than the system board (such as the keyboard), a non-critical error message is displayed on the screen and testing is stopped. You can continue testing when a non-critical error occurs by pressing the **F1** key.

When the POST encounters an error that requires you to correct something, either a beep code will sound or a message will be displayed in a box in the middle of the screen. If you need to enter the Setup Utility to correct a problem, press **F2**. Otherwise, press **F1** to continue the boot process and ignore the error.

Appendix D: System Mapping

The tables below list the memory map and system interrupt/DMA channel assignments for the notebook.

Memory Map

Table D-1: Upper Memory Address Map

Memory Address	Description	Size
A0000-BFFFFh	Used - VGA graphics	128KB
C0000-C7FFFh	Used - Video BIOS	32KB
C8000-EFFFFh	Available (UMB and PCMCIA Window)	160KB
F0000-FFFFFh	Used - System ROM	64KB

DMA Channels

Table D-2: DMA Channel Assignments

DMA Channel	Assignment
DMA 0	Available
DMA 1	Used - Audio
DMA 2	Used - Floppy Disk Drive
DMA 3	Available
DMA 4	System Reserved
DMA 5	Used - Audio
DMA 6	IrDA1.1
DMA 7	Available

System Interrupts

IRQ assignments can be changed by Windows 95. The following are fixed, or defaults.

Table D-3: System Interrupt Assignments

IRQ	Assignment
IRQ0	Used - System Timer
IRQ1	Used - Keyboard
IRQ2	Used - Slave Interrupt
IRQ3	Used - COM2, COM4
IRQ4	Used - COM1, COM3
IRQ5	Used - Audio
IRQ6	Used - Floppy Disk Controller
IRQ7	Used - LPT1
IRQ8	Used - RTC
IRQ9	Used - Software redirect VGA
IRQ10	System Reserved
IRQ11	Available
IRQ12	Used - PS/2 mouse
IRQ13	Used - NPU
IRQ14	Used - HDD
IRQ15	Used - CD-ROM

I/O Address Map

Table D-4: I/O Address Map

Address	Device
000-01F	DMA Controller 1
020-021	Interrupt Controller 1
040-05F	Timer/Counter
060-06F	Keyboard Controller
070-07F	RTC & NMI Mask
080-08F-091	DMA Page Register
092-09F	System Control Port
0A0-0A1	Interrupt Controller 2
0C0-0DF	DMA Controller 2
0F0-0FF	Math Coprocessor
1F0-1FF	Hard Disk Controller
170-17F	CD-ROM
200-207	Game port
200-20F	System Controller Register
240-253	Audio Chip
2F8-2FF	Serial Port 2
330,331	MIDI
350-35F	IrDA1.1
376,377	CD-ROM
378-37A	Parallel Port
388-38B	Audio Chip
3B0-3BB	VGA Controller
3CO-3DF	VGA Controller
FCFC-FCFF	PCMCIA Chip
3F0-3F7	Floppy Disk Controller
3F8-3FF	Serial Port 1
CF8-CFF	PCI Bus

Appendix E: Port Pin Assignments

The tables below lists the pin assignments for the notebook's various ports.

Table E-1: Parallel Port Pin Assignments

Pin	Standard	EPP	ECP
1	Strobe	Write	Strobe
2	PData 0	PData 0	PData 0
3	PData 1	PData 1	PData 1
4	PData 2	PData 2	PData 2
5	PData 3	PData 3	PData 3
6	PData 4	PData 4	PData 4
7	PData 5	PData 5	PData 5
8	PData 6	PData 6	PData 6
9	PData 7	PData 7	PData 7
10	Ack	Intr	Ack
11	Busy	Wait	Busy, PeriphAck(3)
12	PE	(NU)	PError, nAckReverse(3)
13	Select	(NU)	Select
14	Autofd	Datastb	AutoFd, HostAck(3)
15	Error	(NU)	Fault(1), PeriphRequest(3)
16	Init	(NU)	Init(1), ReverseBost(3)
17	Selectin	Addrstrb	Selectin(1,3)
18-25	Ground	Ground	Ground

Table E-2: Serial Port Pin Assignments

Pin	Signal	Pin	Signal
1	DCD	6	DSR
2	RD	7	RTS
3	SD	8	CTS
4	DTR	9	RI
5	GND		

Table E-3: Monitor Port Pin Assignments

Pin	Signal	Pin	Signal
1	Red	9	NC
2	Green	10	GND
3	Blue	11	NC
4	NC	12	SDA
5	GND	13	HSYNC
6	R-RTN	14	VSYNC
7	G-RTN	15	SCL
8	B-RTN		

Table E-4: External PS/2 Port Pin Assignments (PS/2 Keyboard)

Pin	Signal	Pin	Signal
1	KBDATA	4	VCC
2	NC	5	KBCLOCK
3	GND	6	NC

Table E-5: External PS/2 Port Pin Assignments (PS/2 Mouse)

Pin	Signal	Pin	Signal
1	MSDATA	4	VCC
2	NC	5	MSCLOCK
3	GND	6	NC

Appendix F: Technical Specifications

The table below shows the physical and technical characteristics of the notebook.

Table F-1: Notebook Specifications

Specification	PC-9080
CPU	Intel Pentium 133MHz
System BIOS	256KB Flash EPROM
On board Memory	16MB EDO RAM standard (max. 48MB)
	Expandable with the pair of 4, 8 or 16MB memory modules (2 sockets)
L2 Cache	256KB PBSRAM
CD-ROM	6-time speed, interchangeable with battery pack
Floppy disk drive	3.5", 1.44MB floppy disk drive, interchangeable with battery pack
Hard disk drive	Removable 2.5" hard disk drive
Display	12.1" TFT Active Matrix 64k-Color LCD panel
	1024 × 768 resolution
Video Controller	PCI-bus SVGA controller with Windows 95 DCI accelerator. Simultaneous LCD/CRT display capability, up to 1024 × 768 resolution for CRT, 2MB Video memory.
Keyboard	Windows 95 87/88-key keyboard
Pointing device	GlidePoint (touch-sensitive control pad) with 2 buttons
PC Card slots	PCMCIA 2.1 Type II × 2 or Type III × 1, ExCA compliant, ZV-port compliant (only one slot)
Audio	Sound Blaster 16 compatible sound board, Built-in microphone and stereo speakers, External microphone jack, stereo line-in and line-out jacks
Video	Video output jack for composite video monitor, Video input jack and S-input connector
I/O Ports	RS-232C serial port, Parallel port CRT connector, PS/2 keyboard/mouse port IR port (IrDA:115Kbps/4Mbps, ASK:9600bps) Expansion connector (Port Replicator)
Modem (US only)	28.8 Kbps FAX/Modem with modem jack and telephone jack

Power supply	One or two 2500-mAh rechargeable Lithium-ion battery packs (in place of CD-ROM and/or floppy drive), or built-in AC adapter (must be used when both CD-ROM and floppy drives are installed). Second Battery Pack is an option. Battery life: approx. 500 charge/discharge cycles with 1.5-2.5 hours operation per cycle, per pack (3-5 hours with two)
AC Adapter	Built-in auto-switching AC adapter (100V to 240V, 50/60 Hz)
Dimensions	11.69 (w) × 9.65(d) × 2.28(h) inches (297 × 245 × 58 mm)
Weight	7.5 1b. (3.4 kg)

Table F-2: Optional Memory Module Specifications

Specification	**CE-501B**	**CE-502B**	**CE-503B**
Capacity	4MB (Eight 1M × 4, 70ns DRAMs) × 2	8MB (Four 2M × 8, 70ns DRAMs) × 2	16MB (Eight 4M × 4, 70ns DRAMs) × 2
Size	2.35(w) × 1(d) × 0.15(h) inches (59.69 × 25.4 × 3.8 mm)		
Weight	0.013 1b. (6.0 g)	0.012 1b. (5.5 g)	0.017 1b. (7.5 g)

Table F-3: Optional Hard Disk Drive Specifications

Specification	**CE-A40HD**
Capacity	1.1GB
Size	2.95(w) × 4.53(d) × 0.98(h) inches (75 × 115 × 25 mm)
Weight (including cover)	0.40 lb. (180 g)

Table F-4: Optional Battery Pack Specifications

Specification	CE-A40EB
Capacity	2500mAh
Size	5.18(w) × 4.57(d) × 0.98(h) inches (131.5 × 116 × 24.8 mm)
Weight	0.95 lb. (430 g)

Table F-5: Optional Port Replicator Specifications

Specification	CE-A40PR
Ports	One PC Card Type III (two PC Card Type II), One each serial, parallel, VGA, PS/2 keyboard, PS/2 mouse, MIDI/Joystick, Stereo Line-in, Stereo phones-out, Video Out Powered by notebook supply
Size	11.7(w) × 5.7(d) × 3.03(h) inches (298 × 145.3 × 77 mm)
Weight	3.43 1b. (1.55 kg)